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HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2013

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
ONE HUNDRED TWELFTH CONGRESS
SECOND SESSION

SUBCOMMITTEE ON STRATEGIC FORCES HEARING

ON

BUDGET REQUEST FOR ATOMIC ENERGY DEFENSE ACTIVITIES AND NUCLEAR FORCES PROGRAMS

HEARING HELD
APRIL 17, 2012

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FISCAL YEAR 2013 BUDGET REQUEST FOR ATOMIC ENERGY DEFENSE ACTIVITIES AND NUCLEAR FORCES PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES,
Washington, DC, Tuesday, April 17, 2012.

The subcommittee met, pursuant to call, at 3:24 p.m. in room 2212, Rayburn House Office Building, Hon. Michael Turner (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. MICHAEL TURNER, A REPRESENTATIVE FROM OHIO, CHAIRMAN, SUBCOMMITTEE ON STRATEGIC FORCES

Mr. TURNER. Good afternoon. We will call to order the hearing for the Strategic Forces Subcommittee. I apologize for our tardiness. I know you all are very used to the fact that the votes throw the schedule off here at the Capitol, and I appreciate your tolerance for our starting late.

The Strategic Forces Subcommittee hearing on the President's fiscal year 2013 budget request for DOD [Department of Defense] and DOE [Department of Energy] nuclear forces, U.S. nuclear weapons posture, and the fiscal year 2013 budget request from Environmental Management is an incredibly important hearing as we move forward on looking at the priorities and responsibilities of this subcommittee.

I want to thank all witnesses for being here today. For those who follow the sometimes arcane world of nuclear weapons, budgeting and policy, the witnesses on our two panels are familiar faces. They are the Honorable Madelyn Creedon, Assistant Secretary of Defense for Global Strategic Affairs, U.S. Department of Defense; and General C. Robert Kehler, Commander, U.S. Strategic Command.

On Panel 2, we have the Honorable Thomas P. D'Agostino, Administrator, National Nuclear Security Administration; Mr. David G. Huizenga, Senior Advisor for Environmental Management, U.S. Department of Energy; and the Honorable Peter S. Winokur, Chairman, Defense Nuclear Facilities Safety Board.

On December 1, 2010, prior to the ratification of the New START [Strategic Arms Reduction Treaty] Treaty, the then-directors of Lawrence Livermore, Los Alamos, and Sandia National Laboratories wrote to Senators Kerry and Lugar and stated: "We believe that the proposed budgets," referring to the November 2010 update to the Section 1251 plan, "provide adequate support to sustain the safety, security, reliability, and effectiveness of America's nuclear deterrent within the limit of 1,550 deployed strategic warheads established by the New START Treaty with adequate confidence and acceptable risk."

That plan appears to have been abandoned in the President's fiscal year 2013 budget request, calling into question whether there still is adequate support for the Nation's nuclear deterrent to permit the reductions that are called for by the New START Treaty.

There have been those inside and outside of Government who have challenged the linkage of the New START Treaty and the modernization plan. There are those who make the argument that because President Obama has requested more funds than his predecessor, though not the funds that he promised, that he has done all he is needed to do. Neither of these positions represent serious thinking that benefits our national security. The question is what is necessary today and how are we going to accomplish it.

There can be no doubt that reductions proposed by the New START Treaty are only in our national interest if we complete the modernization of our nuclear deterrent warheads delivery systems and infrastructure.

I want to remind those who have forgotten, this was the President's modernization plan. It was his Nuclear Posture Review, issued in April 2010 before there was a New START Treaty, and his 1251 plan. Here are some of the highlights from the President's 2010 NPR [Nuclear Posture Review].

It was stated: "Funding the Chemistry and Metallurgy Research Replacement Project at Los Alamos National Laboratory to replace the existing 50-year-old Chemistry and Metallurgy Research Facility in 2021."

Also from the President's 2010 NPR: "Developing a new Uranium Processing Facility at the Y–12 Plant in Oak Ridge, Tennessee, to come online for production operations in 2021."

Also from the President's 2010 NPR: "The administration will fully fund the ongoing LEP [Life Extension Program] for the W76 submarine-based warhead for a fiscal year 2017 completion, and the full scope LEP study and follow-on activities for the B61 bomb to ensure first production begins in fiscal year 2017."

The President's 1251 plan states that CMRR [Chemistry and Metallurgy Research Replacement] and UPF [Uranium Processing Facility] will complete construction by 2021, and will achieve full operational functionality by 2024.

Further, the inextricable linkage of modernization in the New START reductions was the basis of Condition Nine of the New START Treaty. The linkage was the legal basis on which the Senate ratified the treaty. Let me remind everyone that the Senate said in Condition Nine the following: "The United States is committed to proceeding with a robust stockpile stewardship program, and to maintaining and modernizing the nuclear weapons production capabilities and capacities that will ensure the safety, reliability, and performance of the United States nuclear arsenal at the New START Treaty levels. The United States is committed to providing the resources needed to achieve these objectives at a minimum at the level set forth in the President's 10-year plan provided to Congress pursuant to Section 1251."

The President agreed to Condition Nine as I just read it.

First off, I believe the President is abandoning his commitment that he ratified or acknowledged in Condition Nine, and I think it is in part because he already has his treaty and it has already been ratified. I think implementation is something that he is now putting aside before us. I base that belief on the budget submitted and that the status report required by Condition Nine has not been submitted to Congress. Also the Section 1045 report last year from the NDAA [National Defense Authorization Act] has not been completed.

Let me remind the subcommittee what Dr. James Miller, the President's nominee to the Under Secretary of Defense for Policy, told us just last November. He said, quote: "The first is that we understand the requirement to report per Condition Nine if we have less funding than in the 1251, as requested in the Section 1251 report. Our interpretation of that has been substantially less," meaning that he says that even though we asked for less funding we don't have to file a report. We have to ask for substantially less.

In fiscal year 2011 actually slightly less was appropriated than requested. Back to his words: "Our judgment was a 1 percent or less change doesn't require us to submit the report."

Let us dwell on what he just said again. "Our judgment was that a 1 percent change or less doesn't require us to submit the report."

The difference we are looking at now in the fiscal year 2012 appropriations bills in both the House and Senate appropriations bills I think would trigger that. His words, and we would have to examine that question. If there is substantially less funding than requested, we will, of course, provide the report to Congress.

Yet we have no report for either fiscal year 2012 or the President's own budget request for fiscal year 2013, which underfunds the 1251 plan.

So what has changed? Is it solely the budget picture? I don't mean to dismiss the budget situation and the cuts that DOD has to make, especially it has made those cuts while transferring large sums of its own budget to fund the modernization activities at the NNSA.

But again the question here is whether U.S. nuclear force reductions make sense without modernization. The President's Nuclear Posture Review makes the case for this linkage when it stated: "Implementation of the stockpile stewardship program and the nuclear infrastructure investments recommended in the NPR will allow the United States to shift away from retaining large numbers of nondeployed warheads as a hedge against technical or geopolitical surprise, allowing major reductions in the nuclear stockpile."

In the absence of these investments, will the forthcoming NPR implementation study continue to hurtle toward what seems to be a prejudged outcome that the U.S. should further reduce its nuclear deterrent? I see no other way to understand the President's recent comments at Hankuk University in Seoul, stating: "Last summer I directed my national security team to conduct a comprehensive study of our nuclear forces. That study is under way," the President said. "But even as we have more work to do," the President speaking, "we can already say with confidence that we have more nuclear weapons than we need."

Need for what?

So the study isn't done, but we already know the answer supports the President's goal of a world without nuclear weapons. Either the President already knows the answers to the questions, in which case the Congress must be informed, or the President wrote the question to ensure an answer that he wants.

Again, Congress waits for an answer.

Hopefully, our witnesses today will shed some light on this important area. Either way, I assure you this year's National Defense Authorization Act will ensure Congress' oversight of these issues.

I also want to highlight some of the discussion at this subcommittee's February hearing on governance and management of the nuclear security enterprise. At that hearing we heard from the National Academies of Science about a "broken" and "dysfunctional" relationship between NNSA and its laboratories. We also heard about a system of micromanagement that is costing taxpayers untold millions. The National Academies study and nearly a dozen others have identified and documented the problems and suggested possible solutions.

I hope our witnesses on both panels will help us understand what actions should be taken and when.

Finally, we welcome the opportunity to review the budget and priorities of DOE's Defense environmental cleanup efforts. DOE continues to do good work in nuclear cleanup but also continues to struggle with technical and management issues at its largest project. I look forward to hearing about how DOE intends to address these concerns.

With those concerns having been acknowledged, I now turn to my ranking member, Ms. Sanchez, for her opening remarks.

[The prepared statement of Mr. Turner can be found in the Appendix on page 55.]

STATEMENT OF HON. LORETTA SANCHEZ, A REPRESENTATIVE FROM CALIFORNIA, RANKING MEMBER, SUBCOMMITTEE ON STRATEGIC FORCES

Ms. SANCHEZ. Thank you, Mr. Chairman.

I would like to join Chairman Turner in welcoming General Kehler, Ms. Creedon, Mr. D'Agostino, Mr. Huizenga, and Dr. Winokur.

I am also grateful and thank Ms. Harrington, Dr. Hommert, Dr. Albright and Dr. McMillan, Admiral Benedict, and Admiral Donald for the statements in the record that you all have put in and for being here to participate in our discussion today during the question and answer part of this hearing.

I'd like to preface my comments by noting that the congressionally mandated, voted-on, brought-forward Budget Control Act is reinforcing some difficult decisions, some real soul-searching in all aspects of our Government spending and our defenses, and our strategic defenses are no different. We must reexamine and think about what we really need for the future and decide what we can afford because it is always about limited resources. Really, it is always about limited resources.

So in that context, I would like to touch on a few specific issues related to sustaining our nuclear deterrent and our nuclear forces, nuclear nonproliferation, and nuclear cleanup efforts.

First, our nuclear weapons activities and operations. President Obama and Vice President Biden have made clear over and over the importance of maintaining a safe, a secure, and a reliable nuclear arsenal without nuclear testing while making prudent progress towards lower numbers. There is no doubt in that, that's what they would like to see. Quite frankly, that is what I would like to see.

The Administration is currently conducting an implementation study of the Nuclear Posture Review that will inform the requirements. So it is important to note that with over 5,000 deployed and nondeployed nuclear weapons, the United States still maintains the ability to destroy the world several times over. So when I hear my colleague say for what, I mean, we have a lot in hand.

Even with the progress on nuclear reductions, with nuclear modernization plan's weapons and associated delivery vehicles remaining necessary, we must still think about how to do this in a smart way, how to make effective investments. That is what we need to do, because every dollar that goes this way is a dollar that is taken from somewhere else, whether it is the welfare of our people, the education of our people, the environment our people live in.

For NNSA [National Nuclear Security Administration], while construction of the plutonium research facility at Los Alamos National Laboratory has been delayed, several ongoing or new big-ticket items do require close oversight, including, for example, the construction of the Uranium Processing Facility at Oak Ridge, which is now estimated to cost between $6 to $7 billion, and the B61 Life Extension for forward-deployed warheads in Europe, so far estimated to cost around $5 billion.

However, as we prepare this fiscal year 2013 defense authorization bill, our committee has not received from the NNSA the out-year budget estimate or the stockpile stewardship and management plan to inform our deliberations.

As we look at requirements for maintaining a powerful nuclear deterrent, improved oversight and planning will be crucial to ensure that we can avoid cost overrun and schedule delays. It is part of what this committee is supposed to do, and it is an important piece of what we do. And in that I applaud Chairman Turner for being very diligent about getting to the numbers and trying to move this committee to do the oversight that I think that we need to do.

We also have to think about retaining critical skills, about capability and long-term investments in science and technology to ensure that we keep our brightest and our best employed, looking at this, and making and meeting the standards for nuclear safety.

We will rely on the Department of Defense and STRATCOM [U.S. Strategic Command] to continue to critically examine Cold War-derived requirements, assess their continued value and cost effectiveness, and adaptation to new and likely threats.

This brings me to my second point on nuclear nonproliferation and nuclear threat reduction. I commend the Administration for its successes at the nuclear security summit; particularly the U.S.-

Russian cooperation to secure potentially vulnerable material in Kazakhstan. I would also like to note the total removal of highly enriched uranium from Mexico and the Ukraine, as well as the progress towards converting Russian research reactors to use low-enriched uranium rather than HEU [highly enriched uranium].

However, in contrast, the budget continues to prioritize the construction of the MOX [mixed oxide fuel] facility at almost $1 billion annually, despite the absence of a clear path forward.

Another example, the nonproliferation budget also includes $150 million subsidy for low-enriched fuel production, which should be the weapons activities account, for example, or in the Department's nuclear energy account.

Urgent efforts such as including the President's goal of securing all vulnerable weapons usable material in 4 years must, I believe, be a pressing national security priority.

In this context, I would like to hear about interagency coordination and how the Department of Defense is supporting nuclear nonproliferation efforts.

Third, nuclear cleanup remains a critical issue in the aftermath of the Cold War. Sites like Hanford and Savannah River site played a unique and important piece in our history in the Cold War, but we have to be diligent and we have to get this cleanup done. So I would like to hear about how the Department is addressing the safety culture concerns at the waste treatment plant at Hanford and the cost increases for that program.

Mr. Chairman, there are obviously, and you and I have discussed this before, a lot of other issues this year as we try to move forward in the next couple of weeks and get a mark that is going to work for what we believe are the priorities.

So I am very grateful to have you in front of us today, and again, welcome.

[The prepared statement of Ms. Sanchez can be found in the Appendix on page 59.]

Mr. TURNER. Thank you.

Prior to the beginning of your comments, I just want to acknowledge that our committee works very strongly on a bipartisan basis. We have had an incredible history of strong, unanimous bipartisan support, one of the few committees or subcommittees that generally signs letters that include either all members or both leaderships.

As you begin your comments, I do want to note that this committee, subcommittee, has historically on a bipartisan basis unanimously supported the necessity, not just the desirability, but the necessity of CMRR, the UPF, and the life extension programs. And with that full support that this subcommittee has provided, we look forward to your additional insight.

We ask if you will summarize your written testimony which has been provided to the subcommittee and if you would provide us your oral statement in a period of 5 minutes, we would greatly appreciate that.

We will begin first with Assistant Secretary Creedon.

STATEMENT OF HON. MADELYN R. CREEDON, ASSISTANT SECRETARY OF DEFENSE FOR GLOBAL STRATEGIC AFFAIRS, U.S. DEPARTMENT OF DEFENSE

Secretary CREEDON. Thank you, Chairman Turner and Ranking Member Sanchez and distinguished members of the subcommittee. I am pleased to be here today with General Kehler, Major General Chambers, and Rear Admiral Benedict, as well as my colleagues from the Department of Energy and Dr. Winokur, who are on the second panel, to testify on the important issues of our nuclear forces and nuclear policies.

I will make just a few remarks today to highlight some of the topics addressed in my written statement, which I would like to submit for the record.

The Department plays a crucial role in the President's vision to take concrete steps toward a world without nuclear weapons while maintaining a safe, secure, and effective nuclear deterrent for the Nation and our allies. We are working towards this vision while supporting the demands of a complex global security environment.

We have made and are continuing to make decisions on policy, strategy and future force structure in a way that ensures we are meeting key objectives of the Nuclear Posture Review.

These include: Maintaining strategic deterrence and stability at reduced nuclear force levels and strengthening regional deterrence and reassuring U.S. allies and partners. We are seeking the positive results of these decisions with the entry into force of the New START Treaty in February of 2011. The timing and framework for the next round of arms control negotiations have not been set, but we look forward to discussions with Russia that are broader in scope and more ambitious. These discussions should include strategic and nonstrategic nuclear weapons.

Even after the New START Treaty is fully implemented, the United States and Russia together will account for more than 90 percent of the world's nuclear weapons. For this reason, our next round of arms control efforts will remain focused on Russia, and it is important that Russia join us in a move to lower numbers.

The Obama administration has made clear that we will uphold our security guarantees to our allies and partners. In East Asia we have added new forums to our already robust relationships with Japan and Republic of Korea. These collaborations strengthen U.S. extended deterrence.

In the Middle East, we are nurturing long-standing relationships and expanding new ones to prevent Iran's development of a nuclear weapon capability and to counter its destabilizing policies in the region.

And in Europe, NATO [North Atlantic Treaty Organization] is undertaking a Deterrence and Defense Posture Review to determine the appropriate mix of nuclear, conventional, and missile defense forces that the alliance will need to deter and defend against the range of 21st-century threats.

To promote transparency, the United States took the unprecedented step of releasing the number of nuclear weapons in the stockpile to the public. We would welcome similar declarations from Russia and China. We are also pursuing a high-level dialogue with China aimed at promoting a stable, resilient, and transparent strategic relationship.

Here at home, as you know, we are assessing deterrence requirements to set a goal for future reductions below New START levels, while strengthening deterrence of potential regional adversaries, enhancing strategic stability vis-à-vis Russia and China, and assuring our allies and partners.

I won't go into the further details about the NPR follow-on analysis at this time. The Secretary of Defense has committed to sharing relevant aspects of the new planning guidance with the senior leaders of the defense authorizing committees when the effort is complete. To be clear, this commitment has not changed. But it is clear that this analysis will shape our pathway forward, as will the budget.

The current fiscal situation is putting pressure on the entire Department, and the Nuclear Enterprise is no exception. For fiscal year 2013, we have made careful choices to protect high-priority programs while allowing some efforts to be delayed with acceptable or manageable risks.

Some programs, including the replacement for the *Ohio* class ballistic missile submarine, will be delayed. Others, such as the new bomber, remain on schedule.

The Department has done much to ensure a viable plan to sustain and modernize our nuclear forces given the constraints of the Budget Control Act. In the face of these constraints, DOD has made tough choices, but ones that continue to meet our national security requirements. We do this by investing in our nuclear enterprise, particularly in the stockpile and nuclear infrastructure, as well as through modernization of the delivery systems that underpin strategic deterrence. We are also planning on focusing significant resources on an underappreciated but critical component of strategic deterrence, the nuclear command and control system that links the triad of nuclear forces.

Finally, DOD remains a leader in ensuring that terrorists and proliferators cannot access nuclear materials and expertise abroad. In cooperation with our interagency partners, we are building on our long history of cooperation with allies and partners to expand our efforts in the nonproliferation arena.

Let me conclude by coming back to the NPR and the President's commitment to a comprehensive and balanced nuclear agenda. Our nuclear forces remain the foundation of deterrence. Our arsenal needs significant and immediate investment, and nuclear dangers today are real.

I am pleased to be here with my colleagues to discuss the concrete steps we have taken to sustain the nuclear deterrent and support the President's vision. I would also like to underscore the importance of the strong bipartisan support that the chairman has mentioned on these issues critical to the Nation's security. We welcome the dialogue and debate on these issues as a way to sustain and renew a long-term approach to nuclear security.

Thank you, and I look forward to your questions.

[The prepared statement of Secretary Creedon can be found in the Appendix on page 61.]

Mr. TURNER. Great. Thank you for your statement. And the subcommittee has received statements from each of the witnesses, and without objection those statements will be made part of the record. There are also several other written statements that we have received from various officials on the subject matter of the hearing that without objection will be added to the record.

General Kehler.

STATEMENT OF GEN C. ROBERT KEHLER, USAF, COMMANDER, U.S. STRATEGIC COMMAND

General KEHLER. Thank you, Mr. Chairman and Ranking Member Sanchez, distinguished members of the subcommittee. We certainly appreciate the opportunity to present my views today on the United States Strategic Command's missions and priorities, especially our nuclear responsibilities.

I am pleased to be here with Assistant Secretary Creedon, a great colleague and someone with tremendous insight into U.S. strategic policy and programs.

I am also glad that you are going to hear from NNSA Administrator Tom D'Agostino and the other expert panelists in a little while.

Without question, Mr. Chairman, we continue to face a very challenging global security environment marked by constant change, enormous complexity, and profound uncertainty. Indeed, change and surprise have characterized the time that has passed since my last appearance before this committee.

Over that time, the men and women of STRATCOM have participated in many, many activities, to include the support of operations in Libya and Japan, and others ranging through the preparation of the New Defense Strategic Guidance. Through this extraordinary period of challenge and change, STRATCOM's focus has remained constant, to partner with the other combatant commands, to deter, detect, and prevent strategic attacks on the United States, our allies and partners, and to be prepared to employ force as needed in support of our national security objectives.

Our priorities are clear: First, to deter attack with a safe, secure, and effective nuclear deterrent force; second, to partner with the other commands to support ongoing operations today; third, to respond to the new challenges in space; fourth, to build cyberspace capability and capacity; and finally, to prepare for uncertainty.

Transcending all these is the threat of nuclear materials or weapons in the hands of violent extremists. We don't have a crystal ball at STRATCOM, but we believe events of the last year can help us glimpse the type of future conflict that we must prepare for. Conflict will likely be increasingly hybrid in nature, encompassing air, sea, land, space, and cyberspace. It will likely cross traditional geographic boundaries, involve multiple participants, and be waged by actors wielding combinations of capabilities, strategies, and tactics.

I think it is important to note that the same space and cyberspace tools that connect us together to enable global commerce, navigation, and communication also present tremendous opportunities for disruption and perhaps destruction.

In January, the Department of Defense released new strategic guidance to address these challenges. This new guidance describes the way ahead for the entire Department, but I believe many portions are especially relevant to STRATCOM and our assigned responsibilities. For example, global presence, succeeding in current conflicts, deterring and defeating aggression, countering weapons of mass destruction, effectively operating in cyberspace, space and across all other domains, and maintaining a safe, secure and effective nuclear deterrent are all important areas in the new strategy where STRATCOM's global reach and strategic focus play a vital role.

No question these are important responsibilities. There are real risks involved in the scenarios we find ourselves in today. It is my job to be prepared for those scenarios and to advocate for the sustainment and modernization efforts we need to meet the challenges. And in that regard, the fiscal year 2013 budget request is pivotal for our future. We are working hard to improve our planning and better integrate our efforts to counter weapons of mass destruction.

We need to proceed with planned modernization of our nuclear delivery and command and control systems. We need to proceed with life extension programs for our nuclear weapons, and modernize the highly specialized industrial complex that cares for them.

We need to improve the resilience of our space capabilities, and enhance our situational awareness of the increasingly congested, competitive, and contested domain.

We need to improve the protection and resilience of our cyber networks, enhance our situational awareness, increase our capability and capacity, and work with the entire interagency to increase the protection of our critical infrastructure.

There are other needs as well, but in short, the new national security reality calls for a new strategic approach that promotes agile decentralized action from fully integrated, I would say fully interdependent and resilient joint forces.

These are tough challenges, but the men and women of STRATCOM view our challenges as opportunities, the chance to partner with the other commands to forge better, smarter, and a faster joint force.

We remain committed to work with this subcommittee, the Services, other agencies, and our international partners to provide the flexible, agile, and reliable strategic deterrence and mission assurance capabilities that our Nation and our friends need in an increasingly uncertain world.

Mr. Chairman, it is my honor and a privilege to lead America's finest men and women. They are our greatest advantage. I am enormously proud of their bravery and sacrifice, and I pledge to stand with them and for them to ensure we retain the best force the world has ever seen. I join with the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and other senior leaders in thanking you and the committee for the support you have provided them in the past, present, and on to the future.

Thank you again, Mr. Chairman and Ranking Member Sanchez, and I look forward to your questions.

[The prepared statement of General Kehler can be found in the Appendix on page 70.]

Mr. TURNER. Thank you. We obviously have a tremendous amount to cover here today, including a number of members who are here with some very significant questions. So unfortunately, I am going to ask that we all, including of course myself, the chairman, have some brevity. But, we do have a lot that is going to have to be discussed.

Secretary Creedon, I have basically six questions for you that are divided up into two categories, so I am going to smash them together a bit.

The first category is on budgetary issues with respect to CMRR and the MOA [memorandum of agreement] between the DOD and NNSA, which I will give you, and the second one goes to this issue of Condition Nine, New START, and the mini NPR. So they will be divided up into those two categories.

With the first one, Secretary Creedon, as you know, the Department of Defense has transferred to the National Nuclear Security Administration some $1.2 billion in budget authority for specific purposes as agreed to in that memorandum of agreement that I referenced between Secretary Gates and Secretary Chu, a copy of which will be added to the record.

[The information referred to can be found in the Appendix on page 232.]

Mr. TURNER. I see a total of $4.5 billion that is pledged to be transferred over 5 years, with another $1.1 billion for naval reactors over that period of time to support their work for the *Ohio* class submarine replacement. Reviewing the MOA, I see a total commitment of $1.2 billion for CMRR, which I understand has been deferred until at least 5-year budget window.

My three parts to this first question, I would like for you to first discuss, if you will, why the Department of Defense considered that it was important enough to provide funding for CMRR?

The second part of that first question: We also see in the MOA $785 million that was pledged for the B61 and $224 million for the W76, both of which programs have now been delayed by the NNSA. So have you gotten your money's worth from the NNSA on those two line items?

And then the third is why hasn't the Department of Defense used the authority that we provided in the Defense Authorization Act for the Pentagon to transfer $125 million in appropriated funds directly to NNSA for use in the modernization program? Is it safe to say that the DOD is concerned about where this money has gone?

After your answers to these, we will get to the second component, which is Condition Nine, the mini NPR, and New START.

Secretary CREEDON. I think I have all of that.

Let me start with the CMRR. So the money that was previously transferred in fiscal year 2011 and 2012, that money did in fact go to the intended purpose, and that was to continue to assist with the design of the CMRR.

As we looked at the overall budget for the fiscal year 2013 budget, both for the Department of Defense and for the National Nuclear Security Administration, the NNSA, in light of the Budget

Control Act, we had to make some difficult choices. And so within the context of the Nuclear Weapons Council, we looked at the program of modernization and the two construction projects and made a very conscious decision within the context of the Weapons Council to prioritize the uranium facility at Oak Ridge.

And with that decision came the decision to defer the CMRR for at least 5 years so that we could focus on the Uranium Processing Facility, which for DOD was the higher priority.

Now, your second question on that is do we still need CMRR; and the answer is yes. We need a capability to support the production of pits. Exactly how many we need in the future; in other words, what is the future pit requirement, how big CMRR has to be, how much plutonium it has to hold, those are all decisions that may in fact change at the completion of the UPF when we once again resume consideration of the funding and the design of the CMRR.

Now, with respect to the B61, again the Weapons Council made a very conscious decision, and I will let General Kehler address this as well because he was key to this decision, but the Weapons Council made a decision that deferring this until 2019 was appropriate. The same with the W76. And at some point Admiral Benedict can also shed some more light on this; but with the extension of the W76, again that was something that was in the context of the Weapons Council, was deemed an appropriate, manageable decision in light of the budget constraints.

Okay. Now, with respect to the Condition Nine——

Mr. TURNER. We will get to that one in a second, but I guess what was missed—and I appreciate your ability to handle all of this at once. You have done a great job in answering them. I don't really have the sense in your answers yet of your level of concern with respect to the stewardship of the money that is coming from DOD to NNSA, and there are substantial funding commitments. There is actually a greater authority than commitments that are being followed through with DOD. And the testimony that we have received from just about everyone who has sat in your chair is that they are highly concerned about what is happening with DOD's value of funds in the hands once they are transferred over to NNSA and the lack of accomplishment of the goals that those funds are intended for.

Do you want to voice an opinion on that?

Secretary CREEDON. Sir, one of the issues has been in fact the cost of these various commitments, the 76, the 61, UPF, and CMRR. And we have noted over time that the costs, the estimated costs that had been provided some years earlier, have in fact all increased. And the decisions with respect to the deferral were in fact largely driven by the increased costs.

So yes, DOD is very concerned about the management of the money and about the increased costs associated with the two projects and the two life extensions.

Mr. TURNER. I think that's important, if you could elaborate just a moment. You mentioned the word "management." It really is a management issue that you are concerned about within NNSA, right, and not just the issue of the actual cost of these programs, but the perhaps ineffective management impacting the cost of those programs and the ability for them to be completed?

Secretary CREEDON. I think it's a little bit of both. I mean, there is a concern about the cost. Now, I applaud what Tom D'Agostino, the Administrator of NNSA, is doing to try to get his arms around the costs, particularly of the UPF and the CMRR. His decision to go to a 90-percent design basis before he does his cost basis is not only the absolute right thing to do, but it really is the first time that the NNSA has really committed to do that.

So from a DOD perspective, that's hugely important, is to get to that 90-percent cost design in the UPF, and then understand the requirements and stick to the requirements. I mean, that is a big challenge. It is one that DOD hopes the NNSA can clearly implement. But with some of what Tom is doing, I think that's the right way to go.

Mr. TURNER. Even though you are concerned, but you are encouraged? You are concerned, though, correct?

Secretary CREEDON. I am concerned.

Mr. TURNER. You do believe that there are management issues within NNSA that are resulting in delays in programs and increased costs?

Secretary CREEDON. Yes. And, I also believe Mr. D'Agostino is aware of it, and he is trying very hard to address it, and we are going to support him in his efforts.

Mr. TURNER. Right. And our goal as a committee, we are going to have to get way past awareness. This is obviously something that needs to be addressed, not just awareness.

Secretary Creedon, turning to the issue of Condition Nine, I quoted before Dr. Miller and his statement that in looking at the trigger requirement for reporting on Condition Nine, he was going to interpret the language as requiring reporting only if there is substantially less funding, before defining that trigger of substantially less as being 1 percent.

We now have a budget request that appears to be substantially less, and so turning to you with the question of—we believe that the report should have been provided to Congress in February when the budgetary request came in substantially less, again using his standard because I believe that the requirement for Condition Nine was just less.

So where is the report and is the President committed to providing that to Congress? And, are we actually going to have the Administration arguing that we are not in a substantially less, even though we are in a significantly, I believe, substantially less request?

Secretary CREEDON. Right now the Department is in the final processes of reviewing both the Condition Nine report and the related report that is required in the National Defense Authorization Act for fiscal year 2012. And as we go through the final reviews of both of these reports, we hope to have these finished very soon.

Mr. TURNER. So you have concluded that you need to provide the report? You believe that substantially less has been requested enough to require the Condition Nine report be delivered to Congress?

Secretary CREEDON. We are providing the reports.

Mr. TURNER. Thank you.

On February 21, 2012, we received a letter that is going to be provided to you explaining that DOD will not have the New START force structure plan for the committee as required by the National Defense Authorization Act for fiscal year 2012. We were told that the New START plan is being held up by the President's mini NPR study, and we don't understand how the mini NPR study and the New START Treaty are dependent upon one another, and perhaps you can explain why one would be holding up the other because they don't to us appear to be related?

Secretary CREEDON. The NPR implementation study is going forward apace, and we are also at the same time working on the New START force structural levels. But the New START force structural levels are still under discussion within the building.

The initial efforts, which again I think General Kehler and General Chambers and Admiral Benedict can share some additional light on, are the priorities of implementation. So right now the priorities of implementation are those things that have already been retired. So the 50 Peacekeeper missiles, the 50 Minuteman III missiles that have already been retired out of inventory, that is what the current focus is right this minute.

Mr. TURNER. So is your answer basically then, and I am sorry, obviously these are very complex issues to compare, is it a workforce capacity issue? Are they unrelated as we believe they are unrelated? Or, are you saying that they are related significantly enough for one to impact the completion of the other.

Secretary CREEDON. The focus right now has been on dismantling, addressing those systems that were already retired. So, it is a bit of a prioritization within the Service budgets that is driving some of this. I am happy to have General Kehler add something if he wants.

But at this point, it is a prioritization within the Services' budget. There will be of course a relationship, but the relationship for the 2012 budget, the 2013 budget has not been specifically tied to the implementation study—I am sorry, the analysis of the NPR and the implementation of the NPR.

Mr. TURNER. I have a number of questions for General Kehler, but I am going to pass on so that we can get to other members asking questions, and I will turn to a second round to get to my questions for General Kehler.

With that, I go to Ranking Member Sanchez.

Ms. SANCHEZ. I'll just remind my chairman here that at 4:30 we push into the cyber threat special briefing, which I have to leave for the Democrats. So I know you want to do questions, but we do have a second panel also.

Let's just cut to the chase. Are there any of these changes from the 1251 report plan that were due to budget pressures and the resulting Budget Control Act, meaning that that translates to a less reliable deterrent? In other words, how high has the risk gone because we're under these budget constraints? Or, is there something that we should have that keeps you up at night that you are worried that we're cutting away from?

To both of you. General.

General KEHLER. Congresswoman Sanchez, I'll start, anyway. First of all from an operational perspective, the deployed force today, the deterrent force that is out there deployed today, in the three words that we use is metrics for safe, secure, and effective. And I believe that today it is safe, secure, and effective. We are providing and meeting our deterrence mission responsibilities. And so, I am comfortable and have confidence in the deployed forces that sits out there today.

Second, the question is were there adjustments made that resulted in changes to the 2013 budget that were budget driven and the answer is absolutely there were. There were clearly budget constraints that were placed on us that forced us to make tough choices in fiscal year 2013.

Having said that, my view is that the 2013 budget still does, though, maintain the funding for the most critical capabilities that we have operationally. I think there are some risks, and I believe that those risks we can address adequately.

My biggest concern is what happens beyond 2013. And, I know the committee has received a dual letter from both the Secretary of Defense and Secretary of Energy that reminds the committee that right now we do not have a comprehensive plan in place for post fiscal year 2013.

But the force, I wouldn't want to suggest that the force that is deployed today is not safe, secure, and effective. It is. I believe it can achieve its deterrence responsibilities as we sit there today. In fact, I am extremely confident in that. There were tough choices that were made in 2013. I think those choices were made with some amount of prudence. I believe that we can manage the risk that is associated with those choices, provided that we continue down the road that has been established in prior budgets and continues in 2013. And what I am most worried about is what happens after 2013. And the only reason I am worried about that is I just don't see the plan yet.

Ms. SANCHEZ. Thank you, General.

Madam Secretary.

Secretary CREEDON. I agree with everything General Kehler said. And, there were some difficult choices. Probably the most difficult of all was the decision to delay the *Ohio* class replacement submarine by 2 years. That was a very difficult decision, but one that we have high confidence that the Navy can manage.

Ms. SANCHEZ. Thank you.

Madam Secretary, what is your view of the role of the contribution of the Defense Nuclear Facilities Safety Board? I know some of them are in here, probably, but please.

Secretary CREEDON. The Defense Nuclear Facilities Safety Board does not have a relationship with the Department of Defense. The Defense Nuclear Facilities Safety Board is an advisory body that was established by the Congress. It was established in the late 1980s; it was stood up in the early 1990s, to provide advisory opinions to the Department of Energy in the operations, the nuclear operations, at the Department of Energy to ensure that the Department of Energy and now the NNSA were conducting their nuclear security operations safely and in conformance with the NNSA and the DOE orders, rules, and requirements.

Ms. SANCHEZ. But, I asked you what is your view? Is it needed? Should the Congress rely more on it? Do we need to beef it up? Has it done its job, you know, from where you sit?

Secretary CREEDON. From where we sit at DOD, so you want sort of the DOD view. I think from the pure DOD view there is both recognition that there is a valuable contribution by the board. But, I think very often there is a lot of misunderstanding about the role of the board. And, I think often there is some concern that some of the views and opinions of the board, and this is again within the Department, might have caused increased costs with certain projects. So, I mean, I think the views within DOD vary a little bit. I am not sure that there is one uniform view of DOD with respect to the board.

Ms. SANCHEZ. Thank you. Let me ask just one more. I know we are trying to move it along down the line.

General, when asked in 2010 if there is a military mission performed by U.S. tactical nuclear weapons in Europe that cannot be performed by either U.S. strategic or conventional forces, at the time General James Cartwright, Vice Chairman of the Joint Chiefs of Staff, flatly said, "No."

Do you agree with that assessment; and is there any military function for tactical nuclear weapons that cannot be accomplished by strategic weapons?

General KEHLER. I wouldn't—your question was do I agree with that statement, and the answer is I agree with that statement partially.

In terms of purely military use in an unlikely scenario where we would have to use a nuclear weapon, I think that we have the ability, the U.S. force today has the ability to provide extended deterrence through a variety of means, not just forward-deployed aircraft.

The question about forward-deployed aircraft and forward-deployed weapons is really an alliance question, and I am firmly of the belief that it needs to be discussed and debated and decided in the context of the alliance.

Ms. SANCHEZ. Mr. Chairman, I'll pass it down and when we get to second round, I will ask the rest of my questions.

Mr. TURNER. Mr. Lamborn. We will do 5-minute rounds.

Mr. LAMBORN. Thank you, Mr. Chairman. Thank you both for being here.

Secretary Creedon, does the Obama administration have any plans to reduce the New START limit on deployed U.S. nuclear weapons, which is 1,550, and what are these plans?

Secretary CREEDON. Sir, if I understand the question right, the Administration is committed to complying with the New START Treaty within the central limits of the treaty which is by 2018. The plan is to comply with that. That is absolutely true.

Mr. LAMBORN. I mean to go below that in the future, below the 1,550?

Secretary CREEDON. The President has said that there is certainly an interest in making reductions. The Congress has also had an interest in making reductions, particularly with the nonstrategic warheads. There is a hope, as I mentioned in my opening statement, that as we go for future reductions, that we can include these non-strategics and that we can look—again with Russia—in total stockpile levels. And, so there is no plan. There is certainly the hope that we can get there with Russia.

Mr. LAMBORN. You say an interest, on the part of whom to make these further reductions?

Secretary CREEDON. In the debate on the START Treaty, one of the primary considerations was looking at reducing the nonstrategic warheads, which have not been part of treaties heretofore, and that is a very large consideration in terms of reducing future stockpiles.

Mr. LAMBORN. Okay. Let me ask you a broad, philosophical question. Do you believe that U.S. nuclear weapons are a threat to world peace and safety? Just a broad, philosophical question.

Secretary CREEDON. Nuclear weapons?

Mr. LAMBORN. U.S. nuclear weapons?

Secretary CREEDON. U.S. nuclear weapons right now are very important to maintaining deterrence in this world.

Mr. LAMBORN. But the President is talking about reducing them further, though they play a role, a beneficial role, it sounds like?

Secretary CREEDON. Yes, they do. And the President has said that as long as there are nuclear weapons, there will be a safe, secure, reliable and effective nuclear deterrent, and it is important and he's committed to sustaining that.

Mr. LAMBORN. Okay, thank you.

Let me shift to what the chairman built on, let me build on something he pointed out. Ratifying the New START Treaty was based on at least in part an agreement to adequately fund the modernization of our nuclear stockpile; correct?

Secretary CREEDON. It was a large element of the discussion during the ratification.

Mr. LAMBORN. Okay. Thank you. And, that was done during a lame duck session.

Given that if this agreement to adequately fund modernization is unfulfilled, whether it is by the Administration or Congress or both, should the U.S. consider withdrawing from the treaty that was based on doing that?

Secretary CREEDON. That is the topic of the report that the Department is currently submitting. Right now the deterrent is in fact being maintained, safely, securely, and reliable, and we are in fact planning and focusing on modernizing both the strategic delivery systems and also the weapons complex. It's just at a somewhat lower level, and that's largely driven by the constraints of the Budget Control Act.

Mr. LAMBORN. Would you agree that modernization, if it does not take place, that calls into question our participation in the New START Treaty?

Secretary CREEDON. And, what I am saying is that with the budget that we have submitted, we are in fact carrying out the commitment to modernization.

Mr. LAMBORN. But, should that commitment not be fulfilled in the future, should that lead to a discussion of withdrawing from the treaty?

Secretary CREEDON. That is a very hard question to answer in the abstract and one that would have to look at what exactly that future situation really was. Right now, here, we are committed to the modernization of both the complex and the delivery systems.

Mr. LAMBORN. General Kehler, I am seeing a lot of risk in the Administration's plan for the nuclear stockpile. We've talked about some of the specifics, the *Ohio* submarine delay, delaying CMRR, et cetera, et cetera. Where should we draw the line on risk acceptance as we don't do some of these steps; and how do we know when we have reached that line?

General KEHLER. Congressman, that's a situational answer. As much as I hate to say "it depends," it depends.

At this point in time, I can look at the modernization efforts, the sustainment, first of all, efforts that we have for the triad, and by the way the budget sustains the triad, and I think that is the right thing to do. As we look to the future, I am convinced that the triad continues to serve us well. So the budget supports the triad. The budget continues to support sustainment of the existing triad, although there have been some adjustments made to various pieces of that. The budget supports modernization of the triad with a question mark about what we should do with the land-based deterrent, but an analysis of alternatives that's going to be under way.

So at this point in time, as I look at that, I am comfortable that we are not at the point where I would stand up and say operationally we can't meet the objectives that we have. The investment has to continue in our command and control system. I think that continues to be important. There is a little discussed piece of this for intelligence surveillance and reconnaissance as well. I think that is important as we go forward. And then there is the issue about the weapons and the weapons complex where again, as I say, the biggest risk that I think we are taking in that regard, even though I would have not preferred to see the *Ohio* replacement slide to the right, I think that that increases some risk, but I think it's manageable.

The same with moving the B61 life extension to the right. I think that increases some risk, but I believe that that's manageable as well. I cannot draw firm red lines on a paper for you today.

I can tell you, though, that we need to watch this very carefully as we go forward, and in particular, in the weapons complex. The extended complex past 2013, I am still concerned about the lack of a firm plan as we go forward. In every other case I see the plan.

Mr. LAMBORN. Thank you.

Mr. TURNER. I am going to take the chairman's prerogative as we go on to the next questions and just insert for a second some things that we all can agree upon that I don't want to become confusing as a result of some of the language that is being used in the answers and the discussion.

The Budget Control Act does not dictate any reductions that we are dealing with in this subcommittee with respect to NNSA or nuclear modernization. They are choices being made by the Administration. The answers that you are providing of the effect of the Budget Control Act is merely your recognition of the budget pressures that you have. I want to make that clear so that no one believes that the Budget Control Act dictates the choices that the Administration has made that we are now dealing with in the reductions to NNSA and modernization.

Secondly, as I had said in my opening statement, the issue of the timing of modernization to the adoption of New START Treaty was expressly stated by the Senate in Condition Nine and was expressly concurred with by the President. So it is not merely conjecture or opinion when people question about the issue of New START and the nexus between modernization.

Thirdly, with respect to the 1251 and the modernization plan, both the President and NNSA and DOD have identified it with respect to the modernization plan as being necessary and essential, not merely desirable. That is why we have this issue of the concern of the Administration's choices that it made in its implementation of the Budget Control Act. That struggle that we're having as to how these items that had previously been identified as necessary and essential could fall now to merely desirable is part of what our essence of our questions are.

With that, I will turn to Mr. Garamendi.

Mr. GARAMENDI. I pass.

Mr. TURNER. Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman. I want to thank the panel for being here. General Kehler, thank you for your great service to our country. And Secretary Creedon, thank you for the work you are doing.

General Kehler, just review for me if you would some of your biggest concerns about the stockpile delivery systems and the weapons complex itself? And, I guess as part of that, if you would include your perspective of are these concerns addressed within the fiscal year 2013 budget and program plan?

General KEHLER. Congressman, I would say if I had to summarize my concern across the board in today's deployed force, as well as looking at the future, and particularly in the weapons complex, the word that I would use is "aging."

When I look across the force today, the force in every aspect of the triad, the force is aging. What we know is a couple of facts. One fact that we know is that the current *Ohio* class ballistic missile submarines will reach the end of their lifetime. They will reach that. There is not a hard line to draw in the sand, but it is a risk assessment. And, the Navy has drawn a risk line and said that beyond this point we do not feel comfortable fielding the current generation of *Ohio* submarines. So there is a date out there that there will need to be a replacement.

For the bomber, we are continuing to fly, of course, B–52s that are aging, and some would say aged, and the same for the B–2A which is now a platform that gives us great service, and so does the B–52H model. But both of them, we need to make some investments in for sustainment, and we need to, especially in light of other activities in the world today. We need to invest in a long-range, strategic strike platform that is going to be dual capable, either conventional or nuclear capable.

So we need to get on with that, to deal with the problems that we have in the bomber force.

We don't say much about the tanker, but we need a tanker that goes with it, by the way.

Regarding the ballistic missile, the land-based ballistic missile, we believe that we can take the Minuteman to 2030 in its current form with sustainment investment. Beyond that, I think we have a serious set of questions to ask ourselves about what shape and form of the next ballistic missiles should look like on the land.

In the weapons complex, the same issue is there. Aging. The complex itself is aging and the weapons are aging. The B61, which is going to be needed, we believe, to arm the new bomber platform, is aging in terms of terms of its electronics components, and it is time for a life extension program there.

The W76 which arms the vast majority of the submarine force, also is under way for life extension, but we need to continue and bring it to conclusion as best we can as soon as we can.

Beyond that, we have other weapons that will come down the pike that we need to take a hard look at and continue with plans to modernize them in some way, whether it is a common explosive package as we go forward or such.

Nuclear command and control is another.

So the question is: are those all supported in the fiscal year 2013 budget. In their critical aspects, the answer is yes, they are supported in the fiscal year 2013 budget. They are not supported the same way that we saw a couple of budgets ago. We've looked at the risks associated with the various impacts of the budget on those platforms. And again, my operational assessment is that we can make the appropriate adjustments. I will be very concerned if we make more adjustments beyond these.

I think that further delay to the *Ohio* replacement, for example, will jeopardize our collateral work with the U.K., for example, and I think that would be a mistake. I think that taking more risk in the current *Ohio* class is not a prudent thing to do.

So, I think that we are reaching some points where further adjustments would cause me to have to reassess whether I believe that the operational force is being taken care of.

Mr. LANGEVIN. Thank you, General.

Secretary Creedon, let me turn to the triad, if I could. There has been much deliberation recently over the need for a triad, including the 2010 Nuclear Posture Review which considered and rejected, of course, the elimination of one or more legs of the triad. What are your views on the need for a triad and do you believe we should maintain all three legs of the triad indefinitely?

Secretary CREEDON. Sir, we are very supportive of the triad. The budget supports the triad. The Nuclear Posture Review supports the triad. We need to sustain and maintain the triad. As General Kehler detailed, the fiscal year 2013 budget does that. But, there are clearly some tradeoffs that we have made, and we have to watch this every year to make sure that the budget requests do in fact sustain the triad.

Mr. LANGEVIN. Very good, I would agree.

Thank you, Mr. Chairman. I yield back.

Mr. TURNER. Thank you. General Kehler, I have a great deal of respect for both your intellect, your contributions and service and your choice of language, but I must ask, being a gentleman of Ohio, if you would please not refer to an Ohio replacement. It is the *Ohio* class sub replacement, and it would make me feel more comfortable as we go through this.

General KEHLER. Congressman, I stand corrected, sir. Thank you.

[Laughter]

Mr. TURNER. Thank you. I turn to Mr. Brooks.

Mr. BROOKS. General Kehler, again, thank you for your service to this country. This question will be for you.

According to the information I have received from subcommittee staff, President Obama's fiscal year 2013 budget request proposes to terminate the common vertical lift support platform. This helicopter was to replace the Air Force UH–1N that fill critical roles in security in the ICBM [intercontinental ballistic missile] field. Further, according to committee staff, the average aircraft age is 41 years for these helicopters, and the Air Force uses them to provide support for nuclear weapon convoys, emergency security responses, activities in the National Capital Region, and other missions. The Air Force reports that the termination of the program will save $950 million over the next 5 years and that current UH–1N helicopters will be unable to fulfill their mission requirements and will continue to operate under waivers.

The question is: What is the Air Force's plan to fill the gap and capability left by cancelation of this program? Is it simply the waiver process, is there something else?

General KEHLER. Sir, I will defer to the Air Force on the answer to that question. I know we have General Chambers here. I don't know if he is prepared to answer that.

But let me address it from a standpoint that I can. About a week ago, in fact, exactly a week ago, I was airborne in one of those UH–1s in the missile complex at Francis Warren in Wyoming. I believe that those helicopters are safe to fly in. I know they are using them every day even though some would say those are aged platforms as well.

I am concerned for the long term, and the UH–1 will not meet the security needs as we go to the future. I believe they are doing extraordinary things with those platforms today, and I know that the Air Force is looking very hard at whether they have some near-term alternatives to help with the security improvement, and then what to do for the long term.

I understand from talking to the Chief of Staff of the Air Force that this was very much a budget-driven decision as well.

But I will ask Bill Chambers. Bill, is there anything else?

General CHAMBERS. Congressman Brooks, this was one of the difficult decisions the Air Force made in light of the budget constraints. We are deferring the requirement. The program that you heard about last year was terminated, but a new acquisition strategy for replacement for the vertical lift requirement both for missile fields and for the National Capital Region and for personnel recovery are all part of a fresh look at a new platform.

Meanwhile, one of General Kehler's component commanders, General Kowalski at Global Strike Command is taking steps to mitigate the effect of the continued use of the UH–1. First of all, he has applied more money to sustain the platform. He has enhanced remote surveillance of the launch facilities. He has added structural enhancements to enhance onsite security, and we continue to look at tactics, techniques, and procedures to enhance the use of the UH–1, to include putting UH–1s on 24-hour alert to make them more responsive to security needs.

So, this is a risk we didn't like accepting. We are working it, and have some mitigation measures in place.

Mr. BROOKS. If I can just follow up with a question, with respect to these Hueys, do you have a judgment as to how much longer we can continue to use them and they meet their mission requirements? They're 40–41 years average age now.

General KEHLER. I do not have a specific answer. I would like to provide that for the record if we could.

[The information referred to can be found in the Appendix on page 241.]

General KEHLER. I will tell you this, though. My assessment and because I am a combatant commander, ultimately the responsibility for security in the missile complexes and for the rest of our operational force is my responsibility. I believe that in the ICBM complex specifically, and if you extend this to other legs of the triad as well, security is far better today than it has ever been, in the ICBM complex in particular, through a combination of technology that has been brought to the missile fields through remote cameras and other observation methods that have been put in place, plus additional training, plus additional firepower that has been put into the missile complexes. I believe that they are far more secure today than they have ever been.

Mr. BROOKS. Great. Thank you, and I had hoped to have a little bit more time for this last question, but each of you have talked about the Budget Control Act. For clarity, your testimony——

Mr. TURNER. Mr. Brooks, actually since it is just currently the three of us, I will certainly provide you as much time as you would like.

Mr. BROOKS. Thank you.

With respect to your testimony concerning the Budget Control Act and the cuts, has it been strictly the first tranche of cuts that you have been referencing, or did your statements also include the impact of sequestration?

Secretary CREEDON. No, sir. It's just the first tranche of cuts.

Mr. BROOKS. That being the case, what kind of impact will sequestration have, which is the law of the land, goes into effect January 1, 2013, have on our atomic energy defense activities and nuclear force programs and capabilities?

Secretary CREEDON. You know, that is a very good question and one frankly for which I don't have an answer. The Secretary has been very clear that it would have a devastating effect, and we have not looked at exactly how that would be spread across the various elements. I can only reiterate what the Secretary has said, and it is just a devastating effect. But I don't know the answer to that question because we haven't done that allocation.

General KEHLER. Congressman, nor do I. That would be a question of priorities and it would be a question of depth of cut, and I would echo Secretary Creedon's comment with the Secretary of Defense. He's used the word "devastating."

Mr. BROOKS. The sequestration is 8½ months away. As I understand the President's position, he has said he would veto changes by the Congress to that law. Are you not conducting any drills or do you not have any plans in place for when these cuts occur January 1, 2013, 8½ months away?

Secretary CREEDON. Sir, I think the Secretary has addressed that in some of his hearings. From a policy perspective, I can tell you I have not been personally involved in anything. I think the Secretary has made it clear that at the top line it would just be an extraordinarily devastating outcome. I don't have an answer for you.

Mr. BROOKS. General, have there been any drills or plans to work through the kinds of cuts associated with sequestration on your command?

General KEHLER. We are not doing anything in my command to prepare for sequestration.

Mr. BROOKS. Is there any plan to plan? We are talking about something that is pretty dramatic that is only 8½ months away, and it's the law of the land. Do you have a judgment as to when a plan will be in place? Or, are we just going to wait until December 31 and wake up on January 1 and start planning at that point?

Secretary CREEDON. I don't know the answer to that question. We have not, as far as I have seen, we have not done that. Certainly, again, I have not been involved in anything at my level.

General KEHLER. Same for me, Congressman. The Budget Control Act reduction that was taken, the way it was taken inside the Department, was applied against the new strategy. The new strategy was written, and then the Budget Control Act numbers were put against it. That's where we are.

Mr. BROOKS. Well, I am going to make a comment in response to all this then. You know, I am just a freshman, new kid on the block. But, we are talking about $40–50 billion in cuts, maybe 60, national defense depending on your definition under the statute of national defense. And, we're looking at 8½ months away, and it is very disconcerting to discern or to hear that the executive branch may have no plans as to how that is going to be implemented.

We've heard different theories before HASC as a whole. For example, over on the Senate side, one person from the Pentagon talked about it being the equivalent of a Pentagon shutdown. I believe it was an admiral. My memory may be in error, so I don't want to use his name, but you could find it out Googling it real quick.

Then in HASC, we had testimony that there would be a stoppage of all contracts. Every single contract that the Federal Government has, that the Department of Defense has, that the Pentagon has with the private sector, and they would try to work in somewhere in the neighborhood of 8 to 9 percent on the low side, 13 to 14 percent on the high side, of prorated cuts to every contract. Now how you do that with a ship or what part of an airplane wing do you not put on, this is just very disconcerting. It would seem to me that we need to have a plan, and I understand that you all may not be the ones in the position to make that kind of a decision, but to the extent you can communicate my views to higher-ups I would very much appreciate it.

Mr. TURNER. Thank you. We'll consider the extended time that you had, if you do not mind, being your second round, which will then go into the second round.

My questions are directed to General Kehler, as I indicated, but I'm going to first turn to Mr. Lamborn in case he covers some of the issues on his second round and we don't have repetition.

Mr. LAMBORN. Thank you. Just two or three questions here.

First of all, I am concerned that the credibility of our extended deterrent commitments may fall into serious question, especially if we do unilateral cuts below the New START limit of 1,550. What steps are we taking or planning to be taking to reassure our allies of our commitment to providing a credible deterrent? And at what point will you make unilateral reductions in our nuclear weapons? Do we increase the discussion, the risk, the commitment of our allies, roughly 29 or 30, who are under our nuclear umbrella right now, to begin developing their own nuclear weapons programs?

For both of you.

Secretary CREEDON. Sir, the Secretary said last month that, and this is direct quote, he said: "We have gone through a nuclear review and presented options to the President. But let me be very clear that these options are in no way unilateral."

Those are the words of the Secretary of Defense. So with that in mind, the work that we have done, that we did to engage, to reach out, and to discuss with the allies in support of the START Treaty was extensive. I was not in the Pentagon at the time that all happened. But having understood a lot of that and having also understood what is going on now with respect to discussions with our allies, we are in very close contact with our allies. And, the concern that you raised about others developing nuclear weapons is a very serious concern that we take very seriously. And, clearly that is not to say the least, that is not a desirable goal. That is not a desirable outcome. So, we do take that very seriously, and are working very hard to make sure that that extended deterrence is in fact credible, believable, real, effective.

Mr. LAMBORN. General.

General KEHLER. Congressman, I would just add that I agree with what Secretary Creedon just said. The credibility of our extended deterrence begins with our declaratory statements about our commitment to our allies and our alliances, and it continues from there through the demonstration that we have of our commitment in terms of capabilities. And in that regard, we still have dual capable aircraft in Europe. We have weapons forward-deployed in Europe. Those are conversations for the alliance to have regarding the future of that element of our commitment. But the other part of our commitment is a continued commitment from our strategic triad, in particular our ability to have what are essentially dual capable long-range bombers today that have been used for the last 10 years in conventional operations but are capable of delivering nuclear weapons.

And so, in both of those regards, we have had a number of our allies visit with us in Strategic Command. We've gone over in great detail with them our visible commitment as well as our capabilities. And, I think they understand very well that it is a real and credible commitment that we have and backed up by real and credible capabilities.

Mr. LAMBORN. I believe you both are telling us very openly and honestly everything that you're aware of. It is just that when I hear some of the rumors floating around about massive reductions in our nuclear stockpile and I see our President saying unusual things in an open microphone it just makes me, you know, really, really wonder if there is something there that we don't know about. So, thank you for your answers. I believe you were giving us everything you are aware of.

What are the advantages or disadvantages of deMIRVing our ICBMs? Are there only advantages, or are there also disadvantages?

General KEHLER. Congressman, I think the advantages are twofold. First of all, it is one of the ways that we are going forward to get down to the central limits of the New START Treaty, the 1,550 warheads.

Secondly though, there is a stability issue related to the intercontinental ballistic missiles and how many warheads they carry, and as part of the policy discussion that goes with the deterrence, there has been a long-standing view that a highly MIRVed [multiple independently targetable re-entry vehicle-equipped] ICBM in an existing silo can in fact be destabilizing. And, the theory goes that that is because it is theoretically vulnerable; and, therefore, the more valuable it is with the number of warheads that you hang on it, the more likely it is that an adversary of any kind would want to try to eliminate it quickly and perhaps stimulate some kind of a response in a crisis.

And so, the idea is to bring them down to one reentry vehicle per ICBM to essentially reduce their strategic value. That's the pathway that we have been on for quite some time. I support that. I think that that is the right way to go forward for both of those reasons. I also believe that maintaining the ability to go back to a MIRV in the future as a hedge is also the right thing to do.

Mr. LAMBORN. Because it has a deterrent value; right? The more MIRV capable, the more deterrent value, apart from what you said a minute ago?

General KEHLER. Yes, sir. A hedge strategy has deterrent value. I would agree with that, yes, sir.

Mr. LAMBORN. And that kind of leads to my last question. What is the Air Force's plans, and if you need to bring someone else up or I should wait for Panel 2, let me know, to a nuclear-capable air-launched cruise missile and when is such a capability needed and where do we stand with that?

General KEHLER. I'll take that one.

We are committed to retain a standoff weapon for the current generation of long-range bombers, specifically the B–52. We're also committed to have a standoff capability as well as a penetration capability in the new long-range strike platform. By the way, that will be both conventional and nuclear. So, we will have conventional standoff weapons as well as the ability to penetrate and deliver weapons, et cetera. And, I support both of those.

The current air-launched cruise missile is also aging. We are keeping it in good shape today with a series of sustainment investments. And so, right now it looks like the long-range standoff weapon will be necessary in the mid to late 2020s, just depending on the progress of the new long-range strike platform. And, we believe and the Air Force believes, my Air Force component believes that we can continue to sustain the ALCM [Air-Launched Cruise Missile] and the W–80 warhead that is in it until then.

We are going to watch that very carefully, though, to make sure that is true. And, if there are indications that that is not true, then we intend to work with the Air Force to try to accelerate the long-range standoff weapon.

Mr. LAMBORN. Okay, thank you.

Mr. TURNER. Thank you.

General Kehler, you are the combatant commander for nuclear weapons, and as such, you are the warfighter for implementing the President's nuclear weapons employment guidance and the President's Nuclear Posture View. So, these are your requirements that you are implementing. So, what I would like to turn to is the first section of questions that I was asking the Secretary going to the issue of DOD financial support for NNSA, concerns that you have concerning both with management and performance of NNSA on how it goes to the function that you have. We already went through the long list of things that are being delayed and are not being completed, and they're not all budgetary, as were acknowledged in this hearing. Are you satisfied with NNSA's performance? Do you have concerns about management and performance?

General KEHLER. Sir, first of all, have I mentioned the need to have a replacement for the *Ohio* class ballistic missile submarine, just so I am clear on that?

Second, Congressman, I would say this: We are always satisfied with the product that we get from NNSA. The concern that I have is making sure we are on a path to get the product. That is as clearly I think as I can describe it.

Mr. TURNER. There are signs that are troubling to you; right? You would have that concern even if they were performing; right? But they are not necessarily performing; right? So your concern is being met with actual performance issues that need to be addressed?

General KEHLER. Mr. Chairman, the word "performance" troubles me a little bit here because, again, in the product that we get from NNSA, from the laboratories, through the industrial complex, I don't have any complaints.

Mr. TURNER. The product you have?

General KEHLER. I am sorry, sir?

Mr. TURNER. What you have you mean?

General KEHLER. Right.

Mr. TURNER. The thing we are focusing on are the products that you want to get, the future ones. And those you have from what I understand concerns about the management structure, performance, and I would like to hear those.

General KEHLER. Yes. What I have are concerns about two things. Number one, I have a concern about what happens beyond fiscal year 2013, as I have said a number of times. I think the words that we have been using here is whether or not we have a comprehensive and definitive plan, and the answer right now is we do not. We do not have a comprehensive or definitive plan. That concerns me as I sit here as the customer, if you will, as the user of the product that is put out by NNSA.

Mr. TURNER. In addition to the absence of the plan, you'd have concern about the substance of that plan; right? I mean, there are performance timelines and metrics that you need satisfied?

General KEHLER. Exactly.

Mr. TURNER. And, so both that plan has to be completed, it has to be substantively sufficient to meet your needs, and then there has to be the capability of implementing it?

General KEHLER. Yes, sir.

Mr. TURNER. And I believe you have concerns on those three, even beyond just the existence of the plan, what the substance of the plan would be, and the ability of NNSA to implement it?

General KEHLER. To execute it; yes, sir. And, I would throw all of the stuff you mentioned, when I say I am concerned about the plan, those are the things that I mean. It is all of those factors, and then being able to implement it with sufficient investment that goes behind that. And again, as I said in my opening remarks, my job is to be the advocate for these things. And, as long as I am the advocate for these things, I will have concerns until we get to the point where there is a plan in place that we know we can execute.

Mr. TURNER. General Kehler, your new headquarters is being built through the military construction authorities available to the Department of Defense and through the oversight of the authorization and appropriations committees of Congress. Do you have confidence in that process and what are the attributes of that process? I am going to give you a specific.

Would you say that it's a plus for you to know that going into a project that 20-percent design stage implementation can occur? When you are at that 20 percent and you've got the approval, the congressional authorizers and appropriators are all on board with the project, Congress has committed to providing the authorizations and appropriations needed for the project every year. Would you be concerned if you didn't know each year whether the project was going to be funded because of a continuing resolution or final appropriations bill that may not come until December or even April for a fiscal year that has begun on October 1? Basically as you are looking at your construction, the processes that Congress goes through affects your confidence and your ability for completion. You have a standard of a 20-percent design stage and there certainly are some benefits to that, there are some benefits to the current processes that you have. Can you speak to that for a minute and also then your concerns of how congressional unstable funding can affect your completion?

General KEHLER. Mr. Chairman, I would just say that I believe that the basic rules of acquisition apply in the case of a major project, in our case a new command and control complex, that is supported by military construction. First, you have to have good requirements. And second, you have to have stability. You have to have stability in requirements and you have to have stability in investment. And so, my answer would be that stability, whether that's annual appropriations from Congress to make sure that we are stable or other kinds of stability are critical to make sure that we can deliver on time.

Mr. TURNER. Thank you.

With that, I want to thank this panel for their answers. And we will be moving on to Panel 2, and so we will take a short recess as we are changing panels. Thank you.

[Brief recess.]

Mr. TURNER. We will reconvene.

On our second panel, which I would like to welcome, we have the Honorable Thomas P. D'Agostino, Administrator, NNSA and Under Secretary for Nuclear Security, U.S. Department of Energy; we have Mr. David G. Huizenga, Senior Advisor for Environmental Management, U.S. Department of Energy; and the Honorable Peter S. Winokur, Chairman, Defense Nuclear Facilities Safety Board.

We will begin with Mr. D'Agostino.

STATEMENT OF HON. THOMAS P. D'AGOSTINO, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION, UNDER SECRETARY FOR NUCLEAR SECURITY, U.S. DEPARTMENT OF ENERGY

Secretary D'AGOSTINO. Chairman Turner, members of the committee, good afternoon and thank you for having me here today to discuss the President's fiscal year 2013 budget request. Your ongoing support for the men and women of NNSA and the work they do, as well as your bipartisan leadership on some of the most challenging national security issues of our time has helped keep the American people safe, protect our allies, and enhance global security.

In February 2013, President Obama released his budget for fiscal year 2013. Now more than ever before, the fiscal constraints facing our Nation cause us to ensure that we are targeting the Nation's investments in nuclear deterrent and nuclear security with precision and effectiveness.

I want to assure you that the NNSA is being thoughtful, pragmatic, and efficient in how we achieve the President's nuclear security objectives and shape the future of nuclear security.

President Obama shared his vision for a united approach to our shared nuclear security goals in Prague in April of 2009. His request for the NNSA in 2013 is $11.5 billion, an increase of $536 million over the fiscal year 2012 appropriation. This demonstrates a continued affirmation of the Administration's commitment to investing in a modern, 21st-century nuclear security enterprise. We are focused on continuing our critical work to maintain the Nation's nuclear stockpile and ensuring that it remain safe, secure and effective.

The budget request provides $7.58 billion for the weapons activities account to implement the President's nuclear deterrent strategy with our partners at the Department of Defense. The President continues to support our life extension programs, including funding for the B61 warhead activities. Consistent with the President's 2012 request, we have requested increased funding for our stockpile systems to support the W–78 and W–88 life extension studies.

Our request for investments in the science, technology, and engineering that support NNSA's missions will ensure that the national security laboratories continue to lead the world in advance scientific capabilities. For over a decade, we have been building the tools and capabilities needed to take care of that stockpile, as well as a large and dynamic range of national security work, before utilizing these tools and capability towards the mission of maintaining a safe, secure and effective stockpile while performing the necessary life extension work. Additionally, these capabilities provide a critical base for our nonproliferation and counterterrorism work, allowing us to apply our investments to the full scope of the nuclear security mission.

This budget includes $2.24 billion to maintain our infrastructure and execute our construction projects. To support our stockpile and provide us with world-class capabilities, we need to modernize our Cold War-era facilities and maintain the Nation's expertise in uranium processing and plutonium research. We are adjusting our near-term plutonium strategy by deferring—not canceling—by deferring construction of the Chemistry and Metallurgy Research Replacement Nuclear Facility Project in order to focus our limited resources on the highest priority requirements.

We can meet our plutonium needs on an interim basis, using the capability and expertise found in existing facilities. Deferring of this project will have an estimated cost avoidance of approximately $1.8 billion over the next 5 years, which will help offset the cost of other priorities such as the weapons lifetime extension programs and construction of the greatly needed Uranium Processing Facility at the Y–12 national security complex in Tennessee.

The UPF project is our highest priority capital project requiring immediate modernization. As you know, our deterrent is only one part of NNSA's mission. 2013 will see us continue to advance the President's 4-year goal to secure vulnerable nuclear material around the world. The budget request provides $2.46 billion we need to continue critical nonproliferation efforts.

Our continued focus on innovative and ambitious nonproliferation and nuclear security is vital. The threat is not gone, and the consequences of nuclear terrorism and state proliferation would be devastating. Detonation of a nuclear device anywhere in the world would lead to overwhelming economic, political and psychological consequences. We must remain committed to reducing the risk of nuclear terrorism and state based proliferation.

Anne Harrington and I recently attended the nuclear summit in Seoul, South Korea, where the President and over 50 world leaders renewed their commitment to nuclear security. We know there is no silver bullet solution which is why we continue to implement a multilayered strategy to strengthen the security of nuclear material around the world and maintaining our commitment to detecting and deterring nuclear smuggling.

$1.1 billion is requested for the Naval reactors program, which will support the Navy's effort to complete the *Ohio* class replacement submarine and modernize key elements of our infrastructure. Support for the President's request is essential for our continued ability to support the mission of the nuclear Navy.

This budget request also gives us the resources we need to maintain our one of a kind emergency response capabilities, allowing us to respond to a nuclear or radiological incident anywhere in the world and anticipate the future of nuclear counterterrorism and counterproliferation.

We are committed as well to being responsible stewards of the taxpayer dollars. We have taken steps to ensure that we are building a capabilities-based infrastructure and enterprise focused on future enterprise requirements. We view this constrained environment as an additional incentive to ask ourselves how can we rethink the way we are operating, how we can further innovate, and how we can improve our business processes.

We are not resting on old ideas to solve tomorrow's problems. We are shaping the future of security in a fiscally responsible way.

Budget uncertainty adds cost and complexity to how we achieve our goals. You have been very supportive of our efforts in the past, and I ask you again for your help in providing the stability we need to do our jobs efficiently and effectively.

We are improving our business processes by implementing international consensus standards on quality management, and we are looking forward to shaping the proper workforce through our workforce analysis. For example, taking a look at international standards such as ISO 9001. We are continuously improving, and I look forward to getting into the details in the question and answer session.

[The prepared statement of Secretary D'Agostino can be found in the Appendix on page 101.]

Mr. TURNER. Mr. Huizenga.

STATEMENT OF DAVID G. HUIZENGA, SENIOR ADVISOR FOR ENVIRONMENTAL MANAGEMENT, U.S. DEPARTMENT OF ENERGY

Mr. HUIZENGA. Good afternoon, Chairman Turner and members of the subcommittee. I am honored to be here today with my boss and with Chairman Winokur as well to discuss the important, positive things we are doing for the Nation through the ongoing efforts of the environmental management program and to address your questions regarding our fiscal year 2013 budget request.

Our request of $5.65 billion enables the Office of Environmental Management to continue the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and Government-sponsored nuclear energy research. Our cleanup priorities are based on risk and our continuing efforts to meet our regulatory compliance commitments. Completing cleanup promotes the economic vitality of the communities surrounding our sites and enables other crucial daily missions to continue. By reducing the cleanup footprint, we are lowering the cost of security and other overall activities that would otherwise continue for years to come.

In August 2011, the Office of Environmental Management was aligned under the Office of the Under Secretary for Nuclear Security. This realignment promotes the natural synergies that exist between the Office of Environmental Management and NNSA.

For example, at the Oak Ridge National Laboratory, we are working with NNSA to accelerate the transfer of certain components of the uranium-233 inventory. This inventory is valuable for national security applications and supports NNSA's missions related to safety, nuclear emergency response, and special nuclear material measurement and detection. This innovation and initiative will result in cost savings for our program and enable us to move forward with cleanup of nuclear facilities in the heart of the Oak Ridge National Laboratory.

Over the years, the Office of Environmental Management has made significant progress in accelerating environmental cleanup across the departmental complex. For example, last December at the Defense Waste Processing Facility in our Savannah River site in South Carolina, we solidified a record 37 canisters of highly radioactive waste, marking the most canisters filled in 1 month in the facility's 15-year history.

Out west at the site in Moab in Utah, we've celebrated the removal of 5 million tons of uranium tailings from the site to a safe location away from the Colorado River.

Through 2011, we safely conducted over 10,000 shipments of transuranic waste to the waste isolation pilot plant in New Mexico, the world's largest operating deep geologic repository. As you can see from these accomplishments, the Office of Environmental Management has made great progress and will continue to do so with your help.

We cannot have achieved such notable accomplishments without an outstanding Federal and contractor workforce. The safety of our workers is a core value that is incorporated into every aspect of our program. We have maintained a strong safety record and continuously strive for an accident and incident free workplace. We seek to continue improvements in the area of safety by instituting corrective actions and aggressively promoting lessons learned across the sites.

In collaboration with the Department's Office of Health Safety and Security and our field sites, we are working to achieve a stronger safety culture within our program and thereby improve safe construction and operation of our facilities.

In this regard, on March 22, I attended a Defense Nuclear Facilities Safety Board hearing chaired by my fellow panel member Chairman Winokur regarding the Waste Treatment and Immobilization Plant at Hanford. At the hearing, we discussed the status of the board's technical concern regarding vessel mixing as well as erosion and corrosion issues. We had an in-depth discussion of safety culture at the WTP project. I believe we are making steady progress in both addressing the DNFSB's [Defense Nuclear Facilities Safety Board] technical concerns and promoting the safety culture at WTP.

We will continue to identify opportunities to reduce the lifecycle cost of our program, including the development of new technologies and other strategic investments. We continue working with the Government Accountability Office to institutionalize improvements in contracting and project management. We have established project-sponsored positions at headquarters for all capital asset projects, and conduct regular peer reviews of our most complex projects. We are including U.S. Army Corps of Engineers personnel who have demonstrated experience in project and contract management on these project peer review teams. We are committed to becoming a best in class performer in this area.

Chairman Turner and other members of the subcommittee, we will continue to apply innovative cleanup strategies so that we can complete quality work safely, on schedule, and within cost, thereby demonstrating value to the American taxpayers.

Thank you.

[The prepared statement of Mr. Huizenga can be found in the Appendix on page 139.]

Mr. TURNER. Mr. Winokur.

STATEMENT OF HON. PETER S. WINOKUR, CHAIRMAN, DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Dr. WINOKUR. Thank you, Chairman Turner and members of the subcommittee. I am Peter Winokur, the Chairman of the Defense Nuclear Facilities Safety Board, known as the DNFSB.

I submitted a written statement for the record that describes the board's mission and highlights a number of safety issues that are particularly important to ensuring that the defense nuclear complex can safely accomplish its missions. I will provide a brief summary of my written testimony for your consideration today.

The DNFSB was established by Congress in 1988 to provide safety oversight for the defense nuclear facilities operated by DOE and NNSA. We are the only agency that provides independent safety oversight of DOE's defense nuclear facilities.

As the defense nuclear complex evolves, we cannot ignore the growing challenges that will define the future of DOE's nuclear facilities, the need for Federal stewardship of this enterprise, and the Federal commitment to protect the health and safety of the workers and the public. Today's challenges of aged infrastructure, design and construction of new replacement facilities, and the undertaking of a wide variety of new activities in defense nuclear facilities requires continued vigilance and safety oversight to ensure public and worker protection.

The board's budget is essentially devoted to maintaining and supporting an expert staff of engineers and scientists, nearly all of whom have technical masters degrees or doctorates to accomplish our highly specialized work.

The President's budget request for fiscal year 2013 includes $29.415 million in new budget authority for the board. It will support 120 personnel, the target we have been growing toward for the last several years. We believe this level of staffing is needed to provided sufficient independent safety oversight of DOE's defense nuclear complex given the pace and scope of DOE activities.

The board evaluates DOE's activities in the context of integrated safety management. Integrated safety management is a process-based approach that builds tailored safety controls into operating procedures and facility designs as they are developed. Integrated safety management is efficient and effective for everything from replacing a valve to designing a multibillion dollar facility. DOE has embraced this process in its policies and directives as a fundamental means of achieving adequate protection of workers and the public.

Shortcomings in safety and efficiency in DOE's defense nuclear facilities can almost always be related to a failure to effectively apply integrated safety management. For complex, high-hazard nuclear operations, a performance-based outcome approach may appear successful on the surface but underlying weaknesses and processes can lead to serious accidents and unwanted results. It is critical that DOE avoid the low-probability, high-consequence event that can cripple a facility or program and endanger workers and the public.

DOE and NNSA are designing and building new defense nuclear facilities with a total project cost on the order of $20 billion. I cannot overstate the importance of integrating safety into the design for these facilities at an early stage. Failing to do this will lead to surprises and costly changes later in the process.

The board is committed to the early resolution of safety issues with DOE. To that end, we publicly document significant unresolved technical differences between the board and DOE concerning design and construction projects in quarterly reports to Congress.

Even though the concept of safety and design is embodied in DOE's directives and is constantly emphasized by the board, safety issues have arisen due to DOE and its contractors changing safety aspects of a design of major new facilities without sufficient basis.

One of the most prominent examples involved the Waste Treatment and Immobilization Plant under construction at Hanford and the uranium processing facility plant at the Y–12 national security complex. Making such changes without adequately understanding the associated technical difficulties, complexities or project risk involved can reduce the safety margin of the design, create new safety issues, and imperil the success of the project.

The board is continuing to urge NNSA to replace unsound facilities and invest in infrastructure for the future. The 9212 Complex at Y–12 and the Chemistry and Metallurgy Research Building at Los Alamos are both well overdue for replacement.

Since 2004, the board has issued an annual report to Congress on aging and degrading facilities. We will continue to update this report periodically to highlight the greatest infrastructure needs affecting safety of DOE and NNSA defense nuclear facilities.

In addition to rebuilding its production infrastructure, DOE is attempting to achieve more efficient operations by creating and testing new governance models that rely more on its line organizations for safety oversight, reduce its safety directives, and reduce contract requirements. The board has devoted considerable extensive resources toward reviewing DOE's changes in directives, governance, and oversight. Safety and efficiency need not be mutually exclusive objectives if carefully managed.

Finally, the need to constantly assess and maintain a strong safety cultural throughout the DOE defense nuclear complex has emerged as an imperative for the Department of Energy. The hazards posed by a failed safety culture are real and have led to costly disasters in industry. Lessons learned from the Fukushima reactor accident in Japan and the Deepwater Horizon oil well blowout in the Gulf of Mexico give powerful testament to a strong safety culture.

Mr. TURNER. It looks like we will perhaps be having votes in the middle of the series of this. So I will have to ask your indulgence as we are going to at some point during the questioning have to take a break, so I appreciate that, and perhaps you can incorporate any additional . . .

Dr. WINOKUR. I am finishing up right now.

Let me add in closing that the bulk of issues that the board has safety concerns about are addressed at the staff level without any need for a letter or recommendation. I am confident that the board is working with DOE's liaison to the board to establish an increasingly effective working relationship between the board and DOE. I believe the board's relationship with Deputy Secretary Poneman has never been better.

That ends my statement. I will be happy to answer any questions you may have.

[The prepared statement of Dr. Winokur can be found in the Appendix on page 150.]

Mr. TURNER. I've just been informed that we have about 35 minutes, so perhaps if we can make it through this and conclude.

Throughout all of my questions and my opening statement and I think concerns that you have heard from members of the panel has been the issue of the abandonment by the Administration in this budgetary request of the commitment to the modernization plan that was put forward both in the New START implementation and the 1251 plan. We have statements from the President, DOD, this committee, the Senate and House, and the Senate in the adoption of New START that directly reference the CMRR facility. It was identified as necessary; not merely desirable, but necessary.

Now, Administrator D'Agostino, you have the benefit of having appeared before this subcommittee seven times starting in 2006 when you were Deputy NNSA Administrator. Looking through the record of those appearances, almost every time we see that you stress to this subcommittee how important the Chemistry and Metallurgy Research Replacement, CMRR, Facility is and how the capabilities it will provide are critical to sustaining a stockpile. Again, not desirable, but critical.

And even today, if you look at the statement that you just read to us, and in the written statement you provided, for us, the words "critical," "vital," "necessary," appear repeatedly when you talk about the elements of the issues of the execution of the NNSA performance and our nuclear deterrence.

So, for example, in February 2008, you said that the surveillance and other capabilities that would be provided by the CMRR would be "essential to maintaining the existing stockpile."

Your 2008 testimony elaborated, saying, quote: "A sufficient capacity to produce plutonium pits for nuclear warheads is an essential part of a responsive national security enterprise and is required for as long as we retain a nuclear deterrent. Currently, we have a very small production capability capacity at Los Alamos National Laboratory, about 10 pits per year, and NNSA has evaluated a variety of future pit production alternatives. Whether we continue on our existing path or if we move towards an RRW [Reliable Replacement Warhead]-based stockpile, we will need a capacity to produce about 50 to 80 pits per year. To do this"—still your words—"we would use existing facilities with the addition of a new CMRR nuclear facility. Our approach would provide sufficient production capability to support smaller stockpile sizes, particularly when coupled with potential reuse of pits."

By these statements, it looks like NNSA evaluated pit reuse previously, but rejected an over-reliance on reuse because it would not meet the requirements for responsive infrastructure. Of course some would say that was 2008 when you worked for a different President. But here is what you told this subcommittee just last April when you did work for President Obama, referring to CMRR and the Uranium Processing Facility, UPF, you stated: "These capital projects are key elements for ensuring safe, secure, reliable uranium and plutonium capabilities for nuclear security and other important missions."

In your comments just last April, you defined responsive as: "We have identified that in our plan as having a uranium processing facility that is up and running, having a CMRR facility that is available to do the surveillance work on our stockpile and help support a modest amount of pit manufacturing capability. But one thing we have clear with the Defense Department and the National Nuclear Security Administration is our understanding that it is important to be able to demonstrate that our infrastructure is responsive."

Today, you tell us that the CMRR facility is no longer needed for at least 5 years. I am not certain as this committee tries to evaluate this how we determine if it is credible. And in fact, I would want to say it this way. If we take your testimony and if we put it in front of the committee and allowed it to vote, your testimony today would be outweighed by your previous testimony. So it begs a few questions. Who are we to believe, you from now or you 4 years ago? What are the actual requirements for pit production capacity? What do we really need to see in terms of responsiveness? Why was a reliance on pit reuse insufficient a few years ago but it is suddenly okay today?

We have heard that you think NNSA has a plan, a revised plutonium strategy. You have provided the committee two pages of bullet points, and we do not believe that this is a plan. We believe it's a fig leaf to cover the Administration while it scrambles to figure out the repercussions of its hasty decision, and it was its decision, it was not based on the Budget Control Act, to terminate the CMRR facility.

Now, we have a memorandum dated February 13, 2012, from Donald Cook and it is for Kevin Smith, Manager, Los Alamos Site Office. And this letter shows that you don't actually have a plan. In fact, it shows that you have given Los Alamos National Laboratory 60 days to scrape together a plan, meanwhile the original plutonium plan, the CMRR plan that was put together over the course of a decade has been thrown out, and I just want to reference this memo for a moment, the February 13th memo.

On page 2, it says: "The assignment is a high-level plan containing a sequence of actions and resources required each fiscal year over the fiscal year 2014 to 2018 as a result of delay in the CMRR."

The decision had already been made, and now the question is well, what do we do? There was not a: "what do we do and then we can delay the plan." There was: "let's delay the plan, now what do we do?"

General Kehler, NNSA's customer in many senses, doesn't seem to think that you have a plan either. In testimony before the Senate Armed Services Committee just 3 weeks ago, General Kehler was asked about deferment of CMRR, and said: "The plan to upgrade what we call CMRR, or the Chemical and Metallurgy Building, that allows us to process plutonium is not in place. This has been slipped fairly far to the right, 5 to 7 years depending on which of the documents you look at. I am concerned about that, and I am concerned about our ability to provide for the deployed stockpile. I will be concerned until someone presents a plan."

You heard him. He said it before also. There is no plan that we can look at and be comfortable with and understand that it's being supported.

"So I am not saying that there isn't a way forward. I am hopeful that there is." This is General Kehler. Hopeful. We have a General that has to be hopeful. "We just don't have it yet; and until we do, as a customer I am concerned."

Based on your testimony to other committees, Administrator D'Agostino, I understand that the CMRR decision was primarily budget driven; is that right?

Secretary D'AGOSTINO. The budget situation that the country finds itself in very clearly is an element, but there are other factors. And, with your indulgence, Mr. Chairman, I would like to explain.

Mr. TURNER. Please.

Secretary D'AGOSTINO. Okay. An important point, number one, I want to be very clear on, the country needs a chemistry and metallurgy replacement facility on a nuclear site. It needs the capabilities that that facility provides. It has to have those capabilities. And, the capabilities are very simply material characterization in analytical chemistry work to work on plutonium, in order to do surveillance, as you have mentioned, sir. Those capabilities the country must have, those capabilities the country does have, and those capabilities exist and can exist in existing facilities that the NNSA and the country has at its disposal.

The fact is, of course, the budget situation, the financial situation the country unfortunately finds itself in, the Budget Control Act, I understood the discussion earlier, but it is a reality.

The other piece of reality I have to deal with is the appropriation I received from Congress last December, just one month before the roll-out of the President's budget for fiscal year 2013, which reduced our budget by over $400 million, including $100 million reduction on the CMRR facility. Pulling all of these pieces together provide kind of that fiscal incapability background that we had to deal with, but a couple of things that have changed in the past year that will illuminate the technical situation on with respect to this facility and why I believe firmly that we are on solid ground with the needs that we have on plutonium capability and materials characterization.

The first is that we have an existing facility, a brand new facility called a Radiation Laboratory Utility Office Building. This is a facility at Los Alamos right next to PF–4, our plutonium facility, and this facility we have looked at the safety basis documentation, and by using modern dose conversion factors, we were able to increase by a factor of 4 the amount of material we can use in that particular building. That opens the world right up for us in order to be able to do a significant amount of surveillance work that we need to do in that facility. This did not exist over a year ago. It exists right now, and that provides the Nation and it provides us with a lot of flexibility.

The second particular piece that has changed in the last 12 months is a significant—one of the areas that the CMR——

Mr. TURNER. I am sorry, I have to interject here for a second.

Secretary D'AGOSTINO. Sure.

Mr. TURNER. This building fell out of the sky? I mean, it wasn't a plan, it wasn't something you knew was going to be there, and your testimony over the past 7 years, and considering the record of construction I am certain that there was a significant amount of lead time. Can you please describe to us how the existence of this building somehow changes your previous testimony where clearly that building must have been in the process and its capabilities must have been in the process, so when you say a year ago, I am——

Secretary D'AGOSTINO. A year ago—the Radiation Laboratory Utility Office Building is a brand-new facility that we are placing into operation right now, Mr. Chairman, and the key here——

Mr. TURNER. There was no period of planning, designing, it just showed up?

Secretary D'AGOSTINO. Absolutely not. Of course, we planned and designed this facility, and over many years we ended up putting this facility in place.

Mr. TURNER. Were you unaware of the capabilities when you were——

Secretary D'AGOSTINO. No, we are very well aware of the capabilities.

Mr. TURNER. Then how is it that it didn't affect your testimony before but it does now when its existence clearly was something that was anticipated?

Secretary D'AGOSTINO. Mr. Chairman, I may not have been very clear when I was talking earlier. We have used modern dose conversion factors. We have looked at the safety basis documentation and revised that safety basis documentation within the past year. This was a significant amount of work. We went through a process, and as a result of that we were able to increase the amount of plutonium we can use in these facilities significantly, from four grams of plutonium up to like 34 grams of plutonium. So it is actually a part and parcel of the project.

Mr. TURNER. Wait a minute. You know, these things are difficult for us to understand——

Secretary D'AGOSTINO. Sure.

Mr. TURNER [continuing]. Because, you know, obviously we are not the experts like you guys are, and, you know, when we get your testimony year after year and time after time, and we go to rely on it and then we suddenly get testimony that is completely different, I mean, it is not as if we have a different D'Agostino standing in front of us.

Secretary D'AGOSTINO. Same person, sir.

Mr. TURNER. Same guy. It would—I mean, we just have to apply logic, right? So if you have this—I mean, you are recommending that the CMRR be delayed 5 years, not that it be eliminated.

Secretary D'AGOSTINO. That is right, the country does need a long-term sustainable capability in this area. What we have right now is an opportunity by using existing facility to do the work that we, that the CMRR nuclear facility represents, and the radiation laboratory is actually a part of the CMRR project. What we have been able to do with additional analysis is say previously we were limited by between 4 and 8 grams of certain different isotopes of plutonium to work in that building. Because we have sharpened our pencil, we have used modern dose conversion factors, within the past year we have determined that that amount of plutonium can now be increased without any increased risk to the public or the workforce to up in the order of 30 grams. That is a very significant increase in the amount of work we can do in this radiation laboratory. We didn't want to take that count on this happening 2 years ago. We weren't sure that we would be able to do all of the analysis. But we finished that analysis within the past year. That provides the country with a lot of flexibility.

I still believe, and I stand by the testimony, that the capabilities that these facilities provide are absolutely essential in order for us to do our job.

Mr. TURNER. So your answer is that it is not merely budgetary? Because that was my question.

Secretary D'AGOSTINO. The budgetary piece certainly sets the tone and the environment on this particular area because this is essentially, particularly given the concerns and looking at the seismic issues, working with the defense board, looking at the seismic issues, we were talking about a multibillion dollar facility here, as the committee is well aware, and as a result of that, given the pressures that we had, we decided instead of going simultaneously with two large multibillion dollar facilities on top of each other to move them apart in time, and in essence allow us to focus on the most important thing that the Nation needs because we know that this thing that we moved to the right by 5 years or so, the Nation——

Mr. TURNER. Or so. Well, what would the "or so" be?

Secretary D'AGOSTINO. Well, we have to finish essentially our analysis, we have to make sure that we get the uranium processing facility right and that we still maintain that capability to use the Superblock facility at Lawrence Livermore Laboratory and to stage material at device assembly facility as well as complete the work in the CMR radiation building. So we want to take full advantage of the investments the Nation has made over the last 10 years, particularly building the radiation building as well as take advantage of the new missions that we have moved to the device assembly facility in Nevada and the reduction in the amount of material at the Superblock.

Mr. TURNER. You have heard a number of people today, and I am certain you are aware of prior testimony.

Secretary D'AGOSTINO. Right.

Mr. TURNER. That have been pretty condemning of NNSA.

Secretary D'AGOSTINO. Right.

Mr. TURNER. "Broken" is a word that's been used frequently. We have had, you know, in private meetings the representatives from DOD have said that both they and Congress should be outraged over the lack of performance by NNSA. When you are trying to manage something, obviously one of the issues that you look at is what is your metric, right? What are you going to measure and what is the outcome in that measurement? In this instance with NNSA, people have a lot of unfinished projects where there is no ability to measure because there is no performance. There are areas where people are concerned not only that there is not a plan to address the fact that there hasn't been performance, but what that implementation will be when there is a plan that people haven't seen, and many times the plans themselves, as you know, are late, and I would like you to respond to that.

Secretary D'AGOSTINO. Sure. Certainly, I would be glad to.

Mr. TURNER. You have to have some concerns yourself, and if you echo their sentiments, I would like to know that also.

Secretary D'AGOSTINO. Absolutely. I have been looking forward to taking this question actually after listening to your comments earlier today. Management involves essentially people and processes focused on getting the mission done, and frankly, in that standpoint, leadership is about establishing that vision. But I take the measurements from the standpoint of what have we accomplished. Let's think about what has actually happened over the last number of years. The W76——

Mr. TURNER. Just pause for a second. I think we are all familiar with what happened. What our focus is on, which is why there is congressional oversight, are the things that aren't happening, why they aren't happening, and when they are going to happen. So perhaps you could give us some focus on—because that I would assume—I mean, your management focus would not be on a victory lap, it would be on your to-do list, and I am concerned about your to-do list, so let's focus on those things that aren't getting done.

Secretary D'AGOSTINO. I think it is important, though, since you started off the question, sir, with talking about lack of performance that the NNSA has actually performed very well over the last couple of years, and I would like to get on the record the work we have done on the W76, getting that job done, operationalizing the national ignition facility project, putting the radiation laboratory building into operation, and in fact increasing the workload by that facility by a factor of four, moving nuclear material out of Lawrence Livermore Laboratory in order——

Mr. TURNER. I am sorry, you were doing that so quickly, we are having a discussion up here, did you just say W76 completed?

Secretary D'AGOSTINO. No.

Mr. TURNER. Okay.

Secretary D'AGOSTINO. I said the production work and full production mode on the W76.

Mr. TURNER. Because it's delayed how long?

Secretary D'AGOSTINO. We have got a production rate that——

Mr. TURNER. How long is the W76 delayed?

Secretary D'AGOSTINO. The finishing of the work that we jointly agreed to with the Defense Department pushes us back to 2019 in order to meet the Navy's operational memo.

Mr. TURNER. A 3-year period is my understanding?

Secretary D'AGOSTINO. Two years. But we are well under way on production on a very complicated system that the Nation relies upon. I want to talk about the future, since I think this is the piece that you were interested on what is happening out in the future from a governance standpoint.

We are focused, and we work with the laboratories, laboratory directors, in fact we met with them earlier this morning on looking at a revised governance approach consistent with the idea that we have hired solid companies to put things, bring their best to bear, using international and national consensus standards, taking advantage of those particular standards, and looking at what directives we can adjust in order to simplify and streamline. This is about continuous improvement. This is not about a magic pill that one can take.

So we've done this before. We have experience in this area. At the Kansas City plant, we've implemented consensus standards there, we've seen an increase in performance, we've seen safety numbers improve fairly significantly, and we expect as a result of all of this when our new facility is built to save over $100 million a year in doing this. We've worked with our laboratory directors in, specifically we've identified 28 directives that they considered burdensome directives, 25 of those directives have been resolved. We'll be glad to provide the subcommittee with the details of that if you're interested.

In the security area specifically we've stepped out, we've taken a look at the DOE orders in the security areas, and for the NNSA we've streamlined them into two particular policies in orders and directives, just two from the whole list in order to streamline those, in order to clarify what some might consider too much directives, too many potentially conflicting items. As a result of our stepping out in that particular area, we have decreased, we have managed to increase our security performance and decrease the security costs by over 10 percent in that 2-year period, bringing technology to bear. So, on governance, I think this is a particularly important point.

Mr. TURNER. Before you go into the next, you were just talking about the rules.

Secretary D'AGOSTINO. Right.

Mr. TURNER. We do have a slide show, it is a 9-minute slide show that we are going to run during the discussion that have, our understanding is that there are 270 DOD rules, orders, and directives that apply to NNSA; DOE, I am sorry, 270 DOE rules and orders and directives that apply to NNSA, and they put together a slide show of those. Because you have mentioned them as being a constraint for you, and I would agree.

You can finish.

Secretary D'AGOSTINO. Okay. So, what we have stepped out over the past years, and we are implementing out into the future is a review board, an order review board where we evaluate each one of the directives and orders that we have that apply to NNSA contractors, we examine them in detail with our contractors in order to find out what elements of those orders might be into the "what" category versus "how." We want to try to separate out the responsibilities to give the flexibilities to our M&O contractors, who are very capable, to let them figure out the best way to achieve the impact or the net results, and as a result of that 12, we have changed the contracts on 12 of these particular orders to simplify and streamline them, and we have a number of other particular orders, another slice of orders, if you will, that we've already looked at. But we have to do a lot more than that, frankly, in my opinion.

We've made a few changes in our organizational structure. We've created an acquisition project management organization in order to address the question of projects being late, to make sure that the contracts folks and the project people are working together to put together the best model in place. Bob Raines is the head of that organization. He has significant experience in this particular area in order to make that happen.

The other thing we have done from an organizational standpoint, and we're not reaping the benefits of all these yet because this is the things that we have done just within the past year, but we are moving out on them, is we have hired Michael Lemke from the Naval reactors organization. He has had experience in combining site office organizations and driving efficiencies in Naval reactors. We are going to take that expertise in that area, and we plugged him in, last week was his first week on the job, and he was with us this morning with the laboratory directors, and we're looking at how do we drive those same types of efficiencies into the weapons side of the program, particularly addressing the nuclear security and national security work that we have to do. There is a tremendous amount of opportunity.

Mr. TURNER. Obviously we have been very lenient with your time period, so we are going to go to our next question.

Secretary D'AGOSTINO. Okay.

Mr. TURNER. If you would like to submit for the record the extention of what you have accomplished, that would be great.

[The information referred to can be found in the Appendix on page 239.]

Secretary D'AGOSTINO. I would like to. I could talk probably for hours on this.

Mr. TURNER. Going to the additional issues of the to-do list and the things at NNSA that need corrected, it is our understanding that the fiscal year 2013 funding request for the W76 life extension program has contained an error. Is this true? And if so, is the Administration going to ask Congress to fix this item and is there an understanding yet what the fix item would be to correct the error?

Secretary D'AGOSTINO. Within the DO—directed stockpile work account we have the resources to make sure that we have the right number in the W76 life extension production rate, and we will work with the committee on that.

Mr. TURNER. Is the number wrong?

Secretary D'AGOSTINO. The number reflects an earlier assessment on production rate which we don't have anymore. So we have to increase the number.

Mr. TURNER. So it's wrong?

Secretary D'AGOSTINO. Within the directed stockpile work account we have the right amount of money in order to fix this problem.

Mr. TURNER. But you are fixing something, a number that is in error? If you don't say yes, that is fine, I will say yes for you. I mean, it obviously, if that—if you are going to have to be fixing it, I would assume that it is an error.

Now, on this issue of NNSA and what needs to be fixed—and by the way, the 9-minute slide is only of the titles of the rules and regulations that you are under that you were mentioning. It takes 9 minutes just to go through the titles.

On February 16th we held a hearing with the National Academies of Science and the former lab directors, and we received a number of recommendations. Their statements were very strong that NNSA needed to be reformed. Some of those included eliminating transactional oversight and instead judging performance outcomes based on high level metrics, reducing duplication in health, safety, and security functions between NNSA and the Department of Energy. A few of them I assume show up there. Following national regulations you mentioned international standards or industry best practices for basic everyday functions instead of unique DOE guidance, streamlining DOE and NNSA orders, regulations, and directives to eliminate those that are redundant or do not add value, and also as an example in response to a question for the record from a hearing last November, you informed us of these hearings—these rules and regulations.

What are NNSA and the Department of Energy doing to address these well documented and chronic problems? And, are there cost savings to be realized in any of these fixes, and there is a performance issue, but there is a monetary issue. Perhaps you could give us your insight there.

Secretary D'AGOSTINO. Sure, and also given the fact I could probably take 10 minutes to answer this question, I will talk and you can tell me when to stop, and we will just add the rest for the record, sir.

[The information referred to can be found in the Appendix on page 241.]

Mr. TURNER. Sure.

Secretary D'AGOSTINO. Okay. We are taking fairly significant action in this particular area. Some of the actions I have described in my earlier response, so not to repeat myself, I won't repeat myself in this particular area. Beside the organizational changes, bringing others in that have experience in combining these, we have combined our site office organization from Pantex and Y–12 site office organization to drive what we think will be about $100 million a year worth of savings in this particular area. We are going to be shifting our oversight from what has been called a transactional level oversight. The performance evaluation plans are the particular pieces that have concerns by the laboratory directors, and what—in order to make that shift to strategic oversight, we have to have confidence in the management assurance systems that the laboratories and plants have in place, and we have that particular set of confidence in the management assurance systems at Kansas City, at Sandia, and at Y–12, and so we are going to, specifically for those three sites, and we are going to be carrying this across all eight sites, we are going to be working on looking at once those management assurance systems are fully mature, shifting the performance evaluation plans to strategic level oversight. Our near-term goal, Mr. Chairman, is to get the first of these done, frankly, in the June timeframe, which is shifting to strategic level oversight. That in itself alone will, I believe, provide a significant shift in the way we look at governance in the NNSA, but we have to do more than that, of course, because we believe that getting this management assurance system, relying on the contractor wholly to put its items in place is not just enough, we have to actually take a look at the contract requirements themselves, one, and, two, take a look at, make sure that our workforce, who is doing the job we have asked them to do, have shifted themselves because it is not enough for me to say management improvements and driving change from my position. It has to happen both in the laboratory and at the site offices and in headquarters. So I would call that, you know, day-to-day supervisors understanding the direction we are going into, relying on our M&O contractors and their assurance systems and having confidence in that, and in monitoring them at the strategic level versus these transactional pieces like put the clipboard and the check boxes.

So that's our goal, Mr. Chairman, is to get something in place frankly by the June timeframe at one of our laboratories, and that was a discussion I had earlier this morning.

Mr. TURNER. Mr. Franks is going to be taking the gavel for the hearing, and I want to recognize Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman. Mr. D'Agostino, way back in your testimony you spoke about the December appropriations. Could you go back and review that, the cuts that were made in your budget in that appropriation.

Secretary D'AGOSTINO. Mr. Garamendi, I will. I'll probably—I would like to also take it for the record as well to make sure we get the full details right down to the last million dollar level, and we can describe the details. From a broad brush stroke, the—we received about a $400 million or so reduction in the weapons activities account. This is the account that takes care of the stockpile itself, and as a result of that the—we had to scale back on the finishing up of the design work on the CMRR nuclear facility itself. Let me see if I can find it.

Mr. GARAMENDI. That is okay. I just wanted to get in place the nature of the problem. We've spent the better part of 2 hours here going over the changes that have occurred in previous plans. It seems to me that those changes are a direct result of a significant reduction in the budget for NNSA and the rest of the nuclear weapons activities. With that in place, you've made an effort to try to explain to this committee the difference between "must have" and "nice to have." I would hope that we are listening. It appears as though and I would like to—perhaps you can do this in additional testimony written without getting into too much detail here, which you have already done, how you have modified the plans based because of the reduction in budget to accomplish the necessity, the necessary goals, the necessary activities, and we as a committee need to recognize that this was, this whole scenario has been put in place by the effort to reduce Government expenditures in most every category to meet the Budget Control Act of last summer and now as it plays out, and it doesn't seem to me to do us any good whatsoever to sit here and start blaming everybody in the world for what is actually a process that has been initiated by the budget reductions that this Congress has put in place.

Now is that correct, that in fact all of these scenarios that have been laid out here, all of the questions that have been brought to bear about the CMRR and Y–12 and changes in plans and delays in helicopters and the rest are a direct result of reduced funding? Is that correct?

Secretary D'AGOSTINO. Mr. Garamendi, that's absolutely correct. Because of the reduced funding situation, we—it forced us, frankly, to responsibly look at what were we trying to accomplish, what are we trying to get done, what is the most important thing to do, that what we are not about is building buildings. We are about providing capability to the country and making sure we have capability to the country. You've heard my explanation on the CMR nuclear facility to take this $1.8 billion liability, push it back, and essentially separate out the camel's humps, if you will, so that we can get things on a more stable platform. We did the same thing with the plutonium disposition capability facility and the work at the K reactor down at the Savannah River site, also took billions of dollars of liability off the books as a result of using, looking at a different way to solve a particular problem to provide a capability, and funding stability, as you said, sir, is very important.

Mr. GARAMENDI. Okay. Now I want to move to something else that you and I have had a conversation about. Part of your activities deal with the disposition of weapons material, specifically plutonium. Could you bring me up to date on the MOX facility in South Carolina?

Secretary D'AGOSTINO. Yes, sir. The MOX facility project is obviously under way. It is significantly beyond the 60—it is beyond the 60-percent design point. I have Miss Harrington here somewhere—there she is—who might come up to the table at some point if you permit to get into the details.

What we have done with the MOX facility project, though, sir, is take, and this relates to the plutonium disposition capability activity that I mentioned, is look at ways to fully utilize that facility in order to take advantage of efficiencies that we found in the facility. Space in the facility that allows us to avoid having to build a plutonium disposition project either at the K reactor or at a brand new facility. We've conducted an internal review of the project. We do this every year, it is part of our new project management principles where we don't move forward until we have 90-percent design, but on our projects we do independent reviews on these projects. We found some challenges, frankly, on this particular project, and all of our nuclear projects because what we find is that the country, this country has limited capability to provide the amount and quantity of nuclear quality assurance materials and skill sets, people, and equipment necessary to make these projects successful, and in the South Carolina-Georgia region there are a number of nuclear projects that are moving up, and so this MOX project is suffering a bit, frankly, as a result of having to essentially be the lead horse in bringing the nuclear capability of the country up to speed.

Mr. GARAMENDI. Okay, excuse me, but let me interrupt you. I would like to have a detailed description of the current status, not only the cost but also the timing.

[The information referred to can be found in the Appendix on page 242.]

Secretary D'AGOSTINO. Sure.

Mr. GARAMENDI. And my next question goes to so what are you going to do with the material that has been processed in this MOX facility if and when it is ever completed?

Secretary D'AGOSTINO. When the MOX facility is completed in the 2016 timeframe, and long before that particular point we are working with the Tennessee Valley Authority in order to establish an agreement, and we have to go through certain environmental, appropriate environmental impact types of a process to get public input to use this material in TVA [Tennessee Valley Authority] reactors. That has not been completed yet. I don't want to prejudge the outcome of the work that has to happen by law in that particular area, but this is a path forward on this particular project.

Mr. GARAMENDI. My understanding is you are going to have considerable trouble achieving that goal and that the material is not desired by the nuclear industry. I would like to hear that also.

Secretary D'AGOSTINO. Well, we would be glad to provide the details of our work with the TVA, and maybe we can come to your office and give you the details or for the committee itself.

Mr. GARAMENDI. You know where to find us. Please do so.

Secretary D'AGOSTINO. Yes, sir.

[The information referred to can be found in the Appendix on page 242.]

Mr. GARAMENDI. Is the NNSA considering any other alternatives to the disposal of the pits, the several dozen tons that we have stored?

Secretary D'AGOSTINO. We are—the Nation has, the NNSA is proposing and the Administration is proposing to finish building the MOX facility and to dispose of it in a way that we have described in our program budget.

Mr. GARAMENDI. Well, then, back to the question, so what do you do with the product that is produced at the facility? I would like to have a detailed answer on that.

[The information referred to can be found in the Appendix on page 242.]

Mr. GARAMENDI. And finally, what efforts is the Administration making with regard to international agreements or joint projects internationally with particularly Russia on the disposal of pits?

Secretary D'AGOSTINO. We have worked with Russia, of course, in the plutonium management and disposition area itself, met with the Russians, most recently Anne and I met with the Russians in Seoul, they are proceeding forward on—what we are talking about is the agreement by which the verification that we see that they have disposed of the same amount of material as we have in this particular area, and so we have to finish the agreements with the State Department on moving forward in that area.

Mr. GARAMENDI. My understanding is the Russians do not believe the MOX process is the way to go.

Secretary D'AGOSTINO. The Russians have chosen a different path. They are using a fast reactor technology in this particular area. This is something this country doesn't have. It would take too long. The Nation has been moving forward in this with a MOX fashion for a number of years, and I believe it is the right path.

Mr. GARAMENDI. Prove it. I want to hear the proof that it is the right path, okay?

Secretary D'AGOSTINO. Sure.

Mr. GARAMENDI. And I want to hear why you do not believe the Russian path is the correct path.

Secretary D'AGOSTINO. Okay. Take that for the record, sir? Or now?

Mr. GARAMENDI. Not here, not now. That is a long discussion.

Secretary D'AGOSTINO. Yes, sir.

Mr. GARAMENDI. And it won't be completed here, but I would like to have a detailed analysis from your organization, these two paths that are possible.

[The information referred to can be found in the Appendix on page 241.]

Mr. GARAMENDI. Finally—well, I think I will let it go at that, Mr. Chairman. I have had more than enough time, more than my allotted time. Not enough time.

Mr. FRANKS. [Presiding.] Thank you, Mr. Garamendi, I appreciate that. We were prepared to extend additional time. Just we have got some votes coming up here, and I will try to be brief and we will make sure we get to the floor on time. I thank all of you, first of all, for being here. You know you are critically important to the future of two little 3-year-olds that are my children, my little twins, and I appreciate you working, hope you do a really good job, and I know, Mr. D'Agostino, that it is a profound responsibility to make sure that the nuclear deterrent of this Nation is credible and capable, and so I hope that you will grant me any diplomatic immunity necessary in the questions here, recognizing that you have a tremendous responsibility.

Evidently there seems to be a little bit of an incongruity between you and former Under Secretary of State Ellen Tauscher vis-à-vis the link between modernization and reduction of our current stockpile. Now, it is not a gotcha question, but it seems to be one of great substance in that it is not just an academic issue.

At our November hearing your written statement indicated a linkage between modernizing the current stockpile in order to achieve the policy objective of decreasing the number of weapons in the stockpile. However, in the discussion period of our November hearing then Under Secretary Ellen Tauscher indicated that the cojoining of modernization and reductions has been, in her opinion, quote, almost a red herring. Now, that, maybe it is the Republican in me, I don't know, but that is a disturbing incongruity in my opinion. Can you help me understand how to assimilate those two things?

Secretary D'AGOSTINO. I'll talk to my comments because I think I know who I am and obviously I worked a long time and very closely with Ellen Tauscher, and I have great respect for her, so I don't have the full context of when she said that. You know, I believe that the plan, you know, it is very important to have a plan, which we do have, on modernization of our stockpile. I mean, that's a plan that has been in place. It has been modified, of course, a little bit, as we discussed earlier, but it has been modified for good reason because, frankly, my budget has been, was appropriated significantly less in this particular area than the President requested, and it would be irresponsible of me, frankly, to try to jump right back on to that 1251 curve. That would be like a billion dollar increase in one year. We can't responsibly spend that kind of money nor would I ask for it, frankly.

So, I believe that when I speak of this that people talk about linkage. When I talk about it, it's the fact that I know the path that we have going forward on our life extensions on the 76 and the 61 and the 78 and the 88 work that we are doing on a day-to-day basis with the Defense Department, I see the commitment by all of the people in that particular front, and we make adjustments when we need to, and therefore the budget piece is an important link into moving forward on our modernization itself.

With respect to the START Treaty itself, my sense would be whether we have the START Treaty or not, whether we have the START Treaty or not, we needed to do something in this particular country, in this country. We had to do something. And what we have is a plan that lined up with the debate on the New START Treaty itself. So I would have argued, and I had in previous administrations, on the need to address this problem, and it wasn't, frankly, until this administration where we started addressing this problem in the most real way that I have ever seen in working in this business, close to 20 years.

Mr. FRANKS. Well, I won't put words in your mouth, but I am assuming that you don't think that the issue of modernization and the issue of reduction in our stockpile are unrelated, that they are not—that the notion of co-joining those is somehow a red herring, I am assuming that is certainly my own perspective.

From the two pages of bullets you provided to the committee on CMRR alternative, we see that the NNSA would rely heavily on reusing plutonium pits that are currently in storage. We've had some relatively recent experience certainly that you understand and are aware of more than I with the plans that we had to reuse canned subassemblies, and for the B61 life extension that, as you again know better than I, didn't pan out very well, and we have also been told that the labs need to conduct a substantial study on reusing pits to see if this is really a viable option. So, tell us what happens if plutonium pits reuse doesn't pan out like the, with the canned subassemblies, and give us some perspective of the technical challenges that must be overcome to make these pits, this reuse a fully viable option, and how much the study would cost related to the study of reusing the pits.

Secretary D'AGOSTINO. Mr. Franks, the area that is, that we continue to work on and have to do more work on is studying the aging phenomena of plutonium metal. Uranium, as you were describing earlier, is completely different from an aging standpoint, different, you know; we have issues, concerns with corrosion on that side. Plutonium metal is very different and unique. We have done a tremendous amount of aging studies. It has been checked by the JASON's review, and we have a very significant body of independent technical peer review that says this material can last 85 to 100 years or so, and we continue to evaluate it because we have to, can't assume, can't rest on those laurels. So that work is going to continue. That will inform the question that you raised on reusing an existing pit, which the Nation has a lot of, or pits, taking advantage of the investments that we have made, frankly, over those many years, reusing that material. There is a certain amount of attractiveness to doing that, not because of the dollar value it saves but because of the amount of handling that you would have to do on plutonium itself. We are concerned about worker safety, making sure that the workers are not exposed to this material longer than necessary. But from my standpoint, we are working very closely with the Defense Department to examine multiple options, whether it's a—I don't want obviously to get classified here, but whether we proceed forward using W76 pits, W68 pits or any of the other wide number of pits that we have. And, the good news by all of this, frankly, is there are a number of options, a number of different paths that we can proceed. We are not hampered by saying the Nation has to have a capability right now to make 50 or 80 pits per year in order to take care of the stockpile. That is great news for the country because we are not forced into making rash decisions on significant investments in a very short period of time. So, we have time to evaluate this area, and just recently General Kehler has been working on studies that he needs to have, and he is going to bring to the Nuclear Weapons Council, we are going to be getting together a Nuclear Weapons Council in the next few months to agree on a path forward on how to move forward in the pit area, but we have to start first with the life extension approach, make sure it informs what kinds of pits we can use, then go check the pits at Pantex and continue to do the aging studies on the plutonium itself.

Mr. FRANKS. Well, Mr. D'Agostino, again, when I started out here, was recognizing the challenge of your job, so I have really just one more question. The oft-repeated notion that national security is the number one job of the Federal Government is never one that one can overstate or really perhaps often enough, and you have mentioned a number of times budget constraints and the impact of the budget and certainly, you know, I understand that, but I will say to you that some of us have been quite concerned that some of the philosophical changes that occur from election to election are not small issues, and in this case, you know, this potential sequestration coming, there's some very serious questions before this Congress and before the country, and our policy and being able to protect the national security of this country goes not only to the obvious of protecting our families, but it also recognizes the need to have a productive environment or a secure environment for productivity, and I hope that we don't get these out of order here.

So with that said, first of all, we're hoping that people like yourselves who have dedicated your life to the cause of human freedom will make your voice heard regardless of sometimes the political pressures that you inevitably deal with because a lot is at stake, and, you know, the budget shouldn't always—the budget doesn't tell us our national security challenges, we certainly have to allot it according to those challenges, but we should first identify the need and be very clear about the potential threats it faces and the necessary responses that we might have to have.

So with that, I would like to ask you one last question. What do you consider the most significant constraint or challenge that you have in being able to maintain the credibility and the effective deterrent that is so vital and has served this country so well for so long?

Secretary D'AGOSTINO. Mr. Franks, I believe—thank you for your comments earlier. I believe the most significant challenge we have, we have collectively, is ensuring that the people in our organization, both Federal and our M&O [management and operating] laboratory folks, see that the country is committed and sustainable over a period of time to this particular work. I believe because people in our organization pay attention to these hearings, they listen, they read the budgets that get put out by the Administration as well as they read the appropriations and authorization bills as they come out. They say does the country care about this area. I think these discussions and debates are a very important part of that.

I will say on behalf of the Administration that—this is not a political statement; this is my view—that the President in this request, we have a 7.2-percent increase in the defense programs portion of the weapons activities account from the appropriation from last December to the request of fiscal year 2013. There are many that will say, well, the President is not committed to this area. I disagree wholeheartedly. I do have an opportunity to make my voice heard in both the Pentagon and the White House in this particular area, and I do, and I am listened to, and I think the sustained commitment over time to the people is what is the most important thing in my view. Without the people, all these great facilities and capabilities are nothing.

Mr. FRANKS. Yes, sir. Well, I would just suggest to you that some of us can't help but have some compunction about some of the President's comments related to his veto pen being ready for any adjustments in the sequestration that could have a very profound effect on what you do, given your comments about the budget today, and so our concerns aren't altogether just a fantasy.

With that, though, I want to thank everyone for coming, and I hope that we can continue to see the beacon of freedom burn. Thank you.

[Whereupon, the hearing was adjourned at 6:07 p.m.]

APPENDIX

APRIL 17, 2012

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

APRIL 17, 2012

Statement of Hon. Michael Turner

Chairman, House Subcommittee on Strategic Forces

Hearing on

Fiscal Year 2013 Budget Request for Atomic Energy Defense Activities and Nuclear Forces Programs

April 17, 2012

Good afternoon. The Strategic Forces subcommittee hearing on the President's FY13 budget request for DOD and DOE nuclear forces, U.S. nuclear weapons posture, and the FY13 budget request for environmental management will come to order.

I want to thank our witnesses for being here today. For those who follow the sometimes arcane world of nuclear weapons budgeting and policy, the witnesses on our two panels are familiar faces. They are:

Panel 1:

- The Honorable Madelyn R. Creedon, Assistant Secretary of Defense for Global Strategic Affairs, U.S. Department of Defense
- General C. Robert Kehler, Commander, U.S. Strategic Command

Panel 2:

- The Honorable Thomas P. D'Agostino, Administrator, National Nuclear Security Administration
- Mr. David G. Huizenga, Senior Advisor for Environmental Management, U.S. Department of Energy
- The Honorable Peter S. Winokur, Chairman, Defense Nuclear Facilities Safety Board

On December 1, 2010, prior to the ratification of the New START treaty, the then-Directors of Lawrence Livermore, Los Alamos, and Sandia National Laboratories wrote to Senators Kerry and Lugar and stated:

> "we believe that the proposed budgets [referring to the November 2010 update to the section 1251 plan] provide adequate support to sustain the safety, security, reliability and effectiveness of America's nuclear deterrent within the limit of 1550 deployed strategic warheads established by the New START Treaty with adequate confidence and acceptable risk."

That plan appears to have been abandoned in the President's FY13 budget request, calling into question whether there is still "adequate support" for the Nation's nuclear deterrent to permit the reductions called for by the New START treaty.

There have been those inside and outside of Government who have challenged the linkage of the New START treaty and the modernization plan. There are those who make the argument that because President Obama has requested more funds than his predecessor, though not the funds that he's promised, he's done all he needed to do. Neither of these positions represents serious thinking that befits our national security.

There can be no doubt that reductions proposed by the New START treaty are only in our national interest if we complete the modernization of our nuclear deterrent—warheads, delivery systems, and infrastructure.

I want to remind those who have forgotten—*this was the President's modernization plan*. It was *his* *nuclear posture review, issued in April 2010 before* there was a New START treaty, and *his* 1251 plan. Here are some highlights:

- From the President's 2010 NPR: "Funding the Chemistry and Metallurgy Research Replacement Project at Los Alamos National Laboratory to replace the existing 50-year old Chemistry and Metallurgy Research facility in 2021."
- Also from the President's 2010 NPR: "Developing a new Uranium Processing Facility at the Y–12 Plant in Oak Ridge, Tennessee, to come on line for production operations in 2021."
- Also from the President's 2010 NPR: "The Administration will fully fund the ongoing LEP for the W–76 submarine-based warhead for a fiscal year 2017 completion, and the full scope LEP study and follow-on activities for the B–61 bomb to ensure first production begins in FY 2017."
- The President's 1251 plan states that CMRR and UPF will complete construction by 2021 and will achieve full operational functionality by 2024.

Further, the inextricable linkage of modernization and the New START reductions was the basis of Condition Nine of the New START treaty. This linkage was the legal basis on which the Senate ratified the treaty. Let me remind everyone what Condition Nine stated:

> "the United States is committed to proceeding with a robust stockpile stewardship program, and to maintaining and modernizing the nuclear weapons production capabilities and capacities, that will ensure the safety, reliability, and performance of the United States nuclear arsenal at the New START Treaty levels . . . the United States is committed to providing the resources needed to achieve these objectives, at a minimum at the levels set forth in the President's 10-year plan provided to the Congress pursuant to section 1251."

Not only do I believe is it fair to inquire whether the President's commitment to modernization is lacking now that he has his treaty, but I base that belief on the budget submissions and the Condition Nine report that has not been submitted to the Congress, nor the companion section 1045 report from last year's NDAA.

Let me remind the subcommittee what Dr. James Miller, the President's nominee to be the Under Secretary of Defense for Policy, told us last November:

> "The first is that we understand the requirement to report [per Condition Nine] if we have less funding than in the Section 1251 as requested in Section 1251 Report. Our interpretation of that has been substantially less. In fiscal year 2011 actually slightly less was appropriated than requested. Our judgment was that a one percent or less change didn't require us to submit the report. The difference we are looking at now [in the FY12 appropriations bills] in both the House and the Senate appropriations bill, I think, would trigger that, and we would have to examine that question . . . If there is substantially less funding than requested, we will, of course, provide the report to Congress."

Yet we have no report for either FY12 or the President's own budget request for FY13, which underfunds the 1251 plan.

So what's changed? Is it solely the budget picture? I don't mean to dismiss the budget situation and the cuts the DOD has had to make, especially as it has made those cuts while transferring large sums of its own budget to fund the modernization activities at the NNSA.

Again, the question here is whether U.S. nuclear force reductions make sense without modernization. The President's Nuclear Posture Review makes the case for this linkage when it stated:

> "implementation of the Stockpile Stewardship Program and the nuclear infrastructure investments recommended in the NPR will allow the United States to shift away from retaining large numbers of non-deployed warheads as a hedge against technical or geopolitical surprise, allowing major reductions in the nuclear stockpile."

In the absence of these investments, will the forthcoming NPR Implementation Study continue to hurtle towards what seems to be a prejudged outcome that the U.S. should further reduce its nuclear deterrent? I see no other way to understand the President's recent comment at Hankuk University in Seoul:

> "[L]ast summer, I directed my national security team to conduct a comprehensive study of our nuclear forces. That study is still under way. But even as we have more work to do, we can already say with confidence that we have more nuclear weapons than we need."

So the study isn't done, but we already know the answer supports the President's goal of a world without nuclear weapons? Either the President already knows the answer to the question, in which case the Congress must be informed, or, the President wrote the question to ensure an answer he'd want.

Hopefully our witnesses today will shed some light on this important area. Either way, I assure you, this year's National Defense Authorization Act will ensure Congress' oversight of these issues.

I also want to highlight some of the discussion at this subcommittee's February hearing on governance and management of the nuclear security enterprise. At that hearing, we heard from the National Academies of Science about a "broken" and "dysfunctional" relationship between NNSA and its laboratories. We also heard about a system of micromanagement that is costing taxpayers untold millions. The National Academies study and nearly a dozen others have identified and documented the problems and suggested possible solutions. I hope our witnesses, on both panels, will help us understand what actions should be taken and when.

Finally, we welcome the opportunity to review the budget and priorities of DOE's Defense Environmental Cleanup efforts. DOE continues to do good work in nuclear cleanup, but also continues to struggle with technical and management issues at its largest project. I look forward to hearing about how DOE intends to address these concerns.

Statement of Hon. Loretta Sanchez

Ranking Member, House Subcommittee on Strategic Forces

Hearing on

Fiscal Year 2013 Budget Request for Atomic Energy Defense Activities and Nuclear Forces Programs

April 17, 2012

I would like to join Chairman Turner in welcoming General Kehler, Ms. Creedon, Mr. D'Agostino, Mr. Huizenga, and Dr. Winokur.

I am also grateful to Ms. Harrington, Dr. Hommert, Dr. Albright and Dr. McMillan, Gen. Chambers, Adm. Benedict and Adm. Donald for your statements for the record and for being with us to participate in our discussions today during the question and answer session.

I would like to preface my comments by noting that the congressionally mandated bipartisan Budget Control Act has imposed a new fiscal reality that is putting enormous pressure on all Government programs, including the Pentagon and NNSA. The Section 1251 report was crafted pre-Budget Control Act.

In this time of fiscal crisis, we must look at what investments must be made now, what cost-effective alternatives are available and what can be delayed with acceptable risk.

So it is in this context that I would like to touch on a few specific issues related to sustaining our nuclear deterrent and our nuclear forces, to nuclear nonproliferation, and to nuclear cleanup efforts.

First on nuclear weapons activities and operations.

President Obama and Vice President Biden have made clear the importance of maintaining a safe, secure and reliable nuclear arsenal without nuclear testing, while making progress toward lower numbers. The Administration is currently conducting an implementation study of the Nuclear Posture Review that will inform requirements.

It is important to note that with over 5,000 deployed and nondeployed nuclear weapons, the United States still maintains the ability to destroy major cities in the world several times over. A few hundred weapons would be so disruptive to society and the environment that it would end life as we know it.

Even with progress on nuclear reductions, nuclear modernization plans for weapons and associated delivery vehicles remain necessary, though we must make smart and effective investments.

For NNSA, while construction of the plutonium research facility at Los Alamos National Laboratory has been delayed, several big-ticket items require close oversight, including for example the construction of the Uranium Processing Facility at Oak Ridge, estimated to cost over $7 billion, and the B61 life-extension for forward-deployed warheads in Europe so far estimated to cost over $5 billion.

However, as we prepare the FY13 defense authorization bill, our committee has not received from the NNSA the out-year budget estimates or the 2012 Stockpile Stewardship and Management Plan to inform our deliberations.

As we look at requirements for maintaining a powerful nuclear deterrent, improved oversight and planning will be crucial to ensure that we can avoid cost overruns and schedule delays, retain the critical skills, capability and investments in science and technology that we need. In doing so, we must ensure the highest standards for nuclear safety.

We will rely on the Department of Defense and STRATCOM to continue to critically examine Cold War-derived requirements, assess their continued value and cost-effectiveness, and adapt to new likely threats.

This brings me to my second point on nuclear nonproliferation and nuclear threat reduction.

I commend the Administration for its successes at the Nuclear Security Summit, particularly the U.S.-Russian cooperation to secure potentially vulnerable material at the former Soviet nuclear test site in Kazakhstan. I would also like to note the total removal of highly-enriched uranium from Mexico and Ukraine, as well as the progress toward converting Russian research reactors to use low-enriched uranium rather than HEU.

However, the funding requests for securing and removing HEU and second line of defense have decreased compared to FY12 appropriated levels.

In contrast, the budget continues to prioritize the construction of the MOX facility at almost $1 billion annually despite the absence of a clear path forward. As another example, the non-proliferation budget this year also includes a $150 million subsidy for fuel enrichment.

Urgent efforts, including the President's goal of securing all vulnerable weapons-usable material in 4 years, must remain a pressing national security priority. In this context, I'd like to hear about interagency coordination, and how DOD is supporting nuclear nonproliferation efforts.

Third, nuclear cleanup remains a critical issue in the aftermath of the Cold War. Sites like Hanford and Savannah River Site played a unique and irreplaceable role during the Cold War and now we continue to make diligent and expeditious progress toward cleanup. I would like to hear about how the Department is addressing the safety culture concerns at the Waste Treatment Plant at Hanford and the cost increases for this program.

STATEMENT OF
HONORABLE MADELYN R. CREEDON
ASSISTANT SECRETARY OF DEFENSE, GLOBAL STRATEGIC AFFAIRS
OFFICE OF THE UNDER SECRETARY OF DEFENSE OF POLICY

ON THE FISCAL YEAR 2013 BUDGET REQUEST FOR ATOMIC ENERGY DEFENSE ACTIVITIES AND NUCLEAR FORCES PROGRAMS

BEFORE THE HOUSE ARMED SERVICES STRATEGIC FORCES SUBCOMMITTEE

APRIL 17, 2012

Chairman Turner, Ranking Member Sanchez, and distinguished members of the Subcommittee, thank you for the opportunity to testify on the important topic of our nuclear forces and the programs and policies that support them. I am pleased to join Administrator D'Agostino, General Kehler, and our other colleagues that are here today for this discussion.

The subcommittee gave us a number of issues to address: how the programs and priorities contained in the Fiscal Year (FY) 2013 budget request for the Department of Defense (DoD) reflects the Obama Administration's nuclear policy, posture, and modernization plans; an assessment of the U.S. nuclear stockpile and its supporting infrastructure; and our perspectives on U.S. nuclear force posture, implementation of the New START Treaty, status of the Nuclear Posture Review (NPR) Implementation Study, nuclear modernization plans and budget requirements under the 1251/1043 report, current and future requirements for nuclear-weapon delivery systems, the decision-making process and strategic perspective of the Nuclear Weapons Council, status of delivery of the report required by section 1043 of the FY 2012 National Defense Authorization Act, and stewardship, sustainment, and modernization of the U.S. nuclear stockpile and supporting infrastructure. Further, you have asked for our perspectives on the management, governance, and oversight issues at the National Nuclear Security Administration (NNSA), and for DoD's assessment of NNSA's effectiveness and ability to deliver what it has promised to the Defense Department, as its "customer" in nuclear weapons programs.

My statement addresses the policy issues listed above. General Kehler will give the U.S. Strategic Command (STRATCOM) operational perspective. Administrator D'Agostino will provide more detailed information on the nuclear stockpile and infrastructure.

Global Nuclear Balance

I would like to start by providing some context about U.S. nuclear forces and nuclear arsenals around the world. As of September 30, 2009 – the time of our last unclassified release – the U.S. nuclear arsenal contained 5,113 weapons. That figure has dropped since then as a result of managing the stockpile. In addition, there are several thousand retired warheads awaiting dismantlement. While the stockpile remains sizeable, it has shrunk significantly from a high point of approximately 31,000 warheads at the height of the Cold War in 1967.

According to unclassified estimates, Russia maintains a stockpile of 4,000 to 6,500 nuclear weapons, of which 2,000 to 4,000 are non-strategic, or "tactical," nuclear weapons. Reporting that is done under the New START Treaty has given us a strong understanding of the numbers of deployed Russian strategic nuclear weapons, but we have significantly less confidence in the numbers of Russian tactical nuclear weapons.

Russia also maintains a robust nuclear warhead production capability to regularly remanufacture warheads rather than conduct life-extension programs. Russia is modernizing its delivery systems, including a mobile variant of the Topol intercontinental ballistic missile (ICBM) and new Borey-class missile submarines with Bulava submarine-launched ballistic missiles (SLBMs). Under the requirements of the New START Treaty, Russia is limited to 800 total and 700 deployed strategic delivery systems. The central limits of the treaty also call on both Russia and the United States to limit deployed strategic warheads to 1,550.

Our NATO allies, the United Kingdom and France, each have a few hundred weapons. France is upgrading its nuclear capabilities by replacing its legacy delivery aircraft with the Rafale and fielding the new M51 SLBM. The UK is replacing its Vanguard-class strategic ballistic missile submarines, collaborating closely with the United States on a new missile compartment to be used on both the Vanguard and the U.S. *Ohio*-class replacement submarine.

We estimate that China has only a few hundred nuclear weapons, but it is increasing the size of its arsenal. Further, China continues to invest in nuclear-weapon delivery systems. Its broad range of missile-development programs includes an effort to replace some liquid-fueled systems with more advanced solid-fueled systems, and it is pursuing a sea-based deterrent with the construction of the Jin-class submarine.

India and Pakistan are also increasing the size of their nuclear arsenals, but each is estimated to have fewer weapons than China. North Korea has tested a plutonium-based weapon design and appears to be trying to develop more advanced nuclear weapons that utilize highly enriched uranium. Iran continues to defy the calls of the international community for transparency into its nuclear activities. Its refusal to cooperate with the International Atomic Energy Agency (IAEA) and the IAEA's recent report on the possible military dimensions of Iran's nuclear program continue to heighten U.S. and international concerns that Iran is pursuing the development of a nuclear weapon.

The array of nuclear-armed or nuclear weapons-pursuing states around the world certainly complicate the global security environment. The United States and Russia, however, together will account for more than 90 percent of the world's nuclear weapons, even after the New START Treaty is fully implemented. For this reason, our focus for the next stage of arms control remains bilateral efforts with Russia.

Implementation of the New START Treaty

Future arms control negotiations with Russia will build on the success of New START. Early in his first term, President Obama made the decision to expedite negotiations for the New START Treaty to reinvigorate nuclear arms control and to minimize the lapse in verification measures occasioned by expiration of the START Treaty. This decision was consistent with the recommendations of the bipartisan Congressional Commission on the Strategic Posture of the United States: to seek an initial agreement with Russia that would ensure continuation of verification measures, and then to use follow-on negotiations to explore the possibility of further reductions.

Expediting negotiations on New START led the Obama Administration to rely on existing nuclear guidance, from 2002, to determine the acceptable limits in the New START Treaty of 1,550 deployed nuclear warheads. This, too, was consistent with the Posture Commission's recommendations. The world, however, has changed since 2002, and the Administration knew that future reductions – particularly if they will be more ambitious in scope, not just numbers – should be grounded in updated guidance. The analysis to support new guidance is underway and I will address it further later in my testimony.

I am pleased to report to the subcommittee that we are fully implementing the verification measures of New START. Since its ratification on February 5, 2011, the United States and Russia have each conducted 18 on-site inspections, fully meeting their respective quotas for the treaty's first year, for a total of 36 inspections. Each side is exchanging updates to our respective databases of strategic offensive arms, twice per year as agreed in the treaty, and delegations from the United States and Russia have met three times under the treaty's Bilateral Consultative Commission to successfully address implementation issues.

In terms of reductions, we are on track to meet the 2018 deadline for the central limits of 1,550 warheads on deployed ICBMs, deployed SLBMs, and accountable nuclear warheads for deployed heavy bombers; 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers; and 800 deployed and non-deployed launchers and bombers.

U.S. Nuclear Forces and Future Arms Control Efforts with Russia

As the NPR stated, New START is the first step in lowering the numbers of nuclear weapons in the U.S. and Russian stockpiles. We intend to consider future mutual reductions with Russia in the numbers of deployed and non-deployed nuclear weapons, both strategic and non-strategic, while ensuring that we maintain our commitments to stability, deterrence, and assurance.

Because of improved relations with Russia, strict numerical parity in nuclear weapons is no longer as compelling as it was during the Cold War. On the other hand, large disparities in nuclear capabilities could raise concerns on both sides and among U.S. allies and partners, and may not be conducive to maintaining a stable, long-term strategic relationship, particularly at lower numbers. Therefore, as the NPR stated, we will place importance on Russia joining us as we pursue additional reductions in nuclear stockpiles.

The timing and framework of the next round of negotiations are not settled, but we are working now to establish the conditions for future discussions. The Administration has been clear that future discussions with Russia should include non-strategic – tactical – nuclear weapons, as directed in the resolution of ratification for the New START Treaty. We will also seek the relocation of Russian non-strategic nuclear weapons away from the territory of NATO member states.

Transparency is critical to the arms control process. The United States took a dramatic step to improve transparency by releasing the number of nuclear weapons in the U.S. stockpile, and we would welcome reciprocal declarations by Russia and China.

Maintaining strategic stability with Russia and China will be a key priority in the years ahead. We are committed to promoting more stable, resilient, and transparent strategic relationships with both countries and are pursuing high-level, bilateral dialogues with each toward that end. As we make progress in these relationships and as U.S. arms control policy and strategy develop, we will keep Congress appropriately informed.

Nuclear Posture Review Implementation Study

Earlier, I referred to the presidentially directed NPR follow-on analysis that is underway. This analysis will culminate in updated nuclear guidance, which will in turn inform the Administration's policy decisions regarding potential future nuclear weapons reductions while strengthening deterrence of regional adversaries, enhancing strategic stability vis-à-vis Russia and China, and continuing assurance of our allies and partners. The analysis will not revisit the principles or conclusions of the NPR; rather, it is a key component of the NPR's implementation.

In fact, in performing this analysis, we focused on achieving the five strategic objectives that the Nuclear Posture Review established:

- Preventing nuclear proliferation and nuclear terrorism;
- Reducing the role of U.S. nuclear weapons in U.S. national strategy;
- Maintaining strategic deterrence and stability at reduced nuclear force levels;
- Strengthening deterrence and assuring U.S. allies and partners; and
- Sustaining a safe, secure, and effective nuclear arsenal.

Last year, Principal Deputy Under Secretary of Defense for Policy Jim Miller explained to the House Armed Services Committee that DoD has been assessing deterrence requirements against these metrics. We are also considering the critical question of what to do if deterrence fails. In effect, we are asking and evaluating the answers to the following questions: what are the guiding concepts for employing nuclear weapons to deter adversaries, and what are the guiding concepts for ending a nuclear conflict on the least catastrophic terms if one has already started?

The Defense Department is leading this process, in close coordination with the National Security Staff and senior officials from the Departments of Energy and State and the Intelligence Community. The process will inform the Presidential direction that guides the force structure, force posture, and stockpile requirements needed to protect the United States and our allies and partners, as well as to inform plans for the employment of nuclear weapons in the event that deterrence fails.

The first step, in a chain of events, will be new Presidential guidance. Based on the President's guidance, the Secretary of Defense will issue more detailed planning guidance to the military and, based on that, the Chairman of the Joint Chiefs of Staff will issue detailed implementation guidance. Finally, STRATCOM will revise its nuclear plans in accordance with the guidance. The Chairman of the Joint Chiefs of Staff and the Under Secretary of Defense for Policy will review STRATCOM's plans, which are ultimately approved by the Secretary of Defense.

FY2013 Budget Request

Underpinning credible U.S. nuclear deterrence is a healthy nuclear complex and a safe, secure, and effective nuclear stockpile. The President and the NPR have made clear that the United States will do what is needed to ensure that the stockpile is safe, secure, and effective for as long as nuclear weapons exist. The current fiscal environment, the added challenges of the

Budget Control Act, and the specter of sequestration, however, are forcing DoD to make tough choices in order to see this commitment through.

Upon taking office, the President made reversing the declining budgets for the nuclear complex a priority. This long-term commitment to the modernization of our nuclear arsenal is reflected in the Administration's section 1251 report on nuclear force structure. We have not wavered in our commitment to the investments that are needed to recapitalize the complex and to ensure we have the highly skilled personnel needed to maintain our nuclear capabilities. As the Principal Deputy Under Secretary of Defense for Policy stated last year, these are large investments, but essential to U.S. national security.

In FY 2012, the President's budget request included $7.6 billion for Weapons Activities at the National Nuclear Security Administration (NNSA). Unfortunately, as this subcommittee is well aware, the final amount appropriated was less than the President had requested. This overall decrease to NNSA's budget request impacted other nuclear-related accounts, such as Nuclear Nonproliferation and Naval Reactors as well as Weapons Activities.

We have been working closely with NNSA to develop a plan that will ensure adequate modernization and investment in the stockpile and infrastructure recognizing the challenge that having fewer available resources will present. This plan will be set forth in the section 1043 report, the DoD portion of which will be submitted in the coming weeks.

For FY 2013, the President's budget request includes $7.6 billion for NNSA Weapons Activities. This number reflects the fiscal austerity that is affecting the range of national security programs, but it also captures the Administration's unwavering commitment to modernizing our nuclear infrastructure, and maintaining a safe, secure, and effective nuclear arsenal.

FY 2013 Budget Issues Related to Forces, Infrastructure, and Delivery Systems

This year, the DoD budget request reflects the hard, but careful, decisions we have made to protect high-priority programs while allowing some efforts to be delayed with acceptable or manageable risk. The budget request protects investments in homeland missile defense and funds continued development of our regional missile defense capabilities, although at a somewhat slower rate.

The budget also funds investments in conventional strike capabilities. Specifically, the DoD is requesting funding for a Defense-wide program in support of continued research to develop a Conventional Prompt Global Strike (CPGS) capability. The objective of the program is to develop and demonstrate boost-glide CPGS technologies and test capabilities that could provide the President with a wider range of options for engaging targets at strategic ranges. The ability to engage global targets in less than an hour is a capability that has previously only been available with nuclear-armed strategic missiles. DoD has no plans to replace nuclear warheads on Minuteman ICBMs or Trident SLBMs with conventional warheads.

Force Modernization

As the President's Budget for FY 2013 makes clear, DoD has important work underway to modernize the delivery systems that underpin nuclear deterrence. The NPR concluded that the United States will retain a nuclear triad under the New START Treaty composed of ICBMs, SLBMs, and nuclear-capable heavy bombers; the President's Budget keeps this commitment.

Sustaining the sea-based, and most survivable, leg of our nuclear deterrent is particularly vital as we move to lower numbers under New START. The service life for the Trident D-5 missile is being extended to 2042. Construction of the first of the *Ohio*-class replacement submarines is scheduled to begin in 2021. This represents a two-year slip compared with last year's plan, but the Navy believes it can manage the challenges resulting from the delay. Specifically, this includes the fact that the first *Ohio*-class SSBNs would reach end-of-life before replacement boats come on-line, and that the common-missile compartment would be installed first in the new British submarine. Twelve new boats are planned, with the first scheduled to begin patrol in 2031. All DoD sustainment and modernization efforts for the submarine-based deterrent are fully funded in the President's FY 2013-2017 request.

The Administration plans to sustain the Minuteman III (MMIII) ICBM system through 2030. Ongoing intensive flight test and surveillance efforts will, by 2015, help determine whether we can achieve that date through better estimates for component age-out and system end-of-life. A two-year Air Force study examining options and required capabilities for a follow-on system is nearly complete, and a new ICBM development program, or a follow-on MMIII life extension, could begin in the 2014-2017 timeframe. A small-scale program to maintain a "warm" production line for MMIII solid rocket motors concluded last year but engineering and development continues to be sustained. A key modernization issue is sustainment of the large-diameter solid rocket motor industrial base pending decisions to produce a follow-on system. The President's FY 2013 Budget Request includes an eight million dollar Air Force study to evaluate a path forward to sustain this key industrial capability.

The United States will maintain two B-52H strategic bomber wings and one B-2 wing. Both bombers, however, are aging. Sustained funding and support is required to ensure operational effectiveness through the remainder of their service lives. Funding has been allocated to upgrade these platforms; for example, providing the B-2 with survivable communications, a modern flight system, and radar. This year, the Department will begin a program for a new, long-range, nuclear-capable, penetrating bomber that is fully integrated with a family of supporting aircraft and intelligence, surveillance, and reconnaissance (ISR) assets. In addition, as modern air defenses put the bomber standoff mission with the air-launched cruise missile (ALCM) – the current nuclear cruise missile deployed with the B-52H bomber – increasingly at risk, DoD is carrying out an analysis of alternatives, to be completed this fall, for an ALCM follow-on system called the long-range standoff (LRSO) missile. We plan to sustain the ALCM and the W80 ALCM warhead until the LRSO can be fielded.

To support the U.S. nuclear presence in Europe in support of our extended deterrence and assurance commitments, DoD is planning to provide a nuclear capability to the Joint Strike Fighter (JSF) to replace aging F-16 dual-capable aircraft (DCA). The original plan was to deliver a dual-capable JSF in 2017. To allow for more maturity in the program, the Air Force now intends to deliver nuclear capability to all JSFs in Europe by 2020 via the Block IV upgrade. The Air Force will ensure no gap exists in our ability to meet extended deterrence commitments to our allies and partners.

I also want to take note of an often underappreciated, but critical, component of strategic deterrence: the nuclear command and control (NC2) system that links the triad of nuclear forces. Independent of deployed delivery systems and warheads, we require robust, survivable, and effective systems for early warning, attack assessment, and force direction to support our existing nuclear employment plans as well as associated contingencies.

The United States must maintain control of nuclear forces in any conceivable scenario, even under the enormous stress of a nuclear attack. An effective NC2 system must clearly and unambiguously detect and characterize an attack; assemble key decision makers in a conference so an appropriate response can be chosen in a timely manner; disseminate emergency action messages to nuclear forces taking into account the survivability of the force elements involved; and provide enduring control of surviving forces.

In the future we plan to spend significant resources on NC2 system research and development, procurement, and operations and maintenance to address a range of challenges, including but not limited to the need for survivable satellite communications; survivable communications to forces; early warning satellite modernization; improved secure senior leader conferencing; hardening of critical communications links to electromagnetic pulse; and airborne and ground mobile command post sustainment/modernization. The good news is that Deputy Secretary Carter "wrote the book," so to speak, on NC2, which has the added bonus of ensuring very senior-level attention across the Department to addressing shortfalls, both today's and into the future.

Conclusion

Upon taking office, President Obama made it a priority to sustain a safe, secure, and effective nuclear deterrent. Implementing these commitments requires partnerships among Executive Branch agencies and with Congress. In the past, these priorities have enjoyed strong bipartisan support and, as President Obama continues to demonstrate the importance he places on them, we hope that Congress will match that commitment.

Our nuclear forces remain the foundation of deterrence. Our arsenal needs significant and immediate investment. Given the declining defense budget, some modernization efforts may proceed more slowly than desired, but to reiterate the President's statements, the NPR, and DoD's new strategic guidance, the United States will maintain a safe, secure, and effective arsenal to deter threats to our Homeland, our deployed forces around the world, and our allies and partners. The President's Fiscal Year 2013 budget ensures that this will remain a leading national-security priority.

Madelyn R. Creedon

Assistant Secretary for Global Strategic Affairs (GSA)

Madelyn Creedon was confirmed by the U.S. Senate as the Assistant Secretary of Defense for Global Strategic Affairs (GSA) on August 2, 2011. In this capacity she supports the Under Secretary of Defense for Policy in overseeing policy development and execution in the areas of countering Weapons of Mass Destruction (WMD), U.S. nuclear forces and missile defense, and DOD cyber security and space issues.

Prior to her confirmation, Ms. Creedon was counsel for the Democratic staff on the Senate Committee on Armed Services and was responsible for the Subcommittee on Strategic Forces as well as threat reduction and nuclear nonproliferation issues.

In 2000, she left the Armed Services Committee to become the Deputy Administrator for Defense Programs at the National Nuclear Security Administration, Department of Energy (DOE), and returned to the Committee in January 2001.

Prior to joining the Armed Services Committee staff in March 1997, she was the Associate Deputy Secretary of Energy for National Security Programs at the Department of Energy, beginning in October 1995.

From November 1994 through October 1995, Ms. Creedon was the General Counsel for the Defense Base Closure and Realignment Commission. This Commission, under the Chairmanship of former Senator Alan Dixon of Illinois, was responsible for recommending to the President military bases for closure or realignment.

From 1990 through November 1994, Ms. Creedon was counsel for the Senate Committee on Armed Services, under the Chairmanship of Senator Sam Nunn. While on the committee staff she was responsible for DOE national security programs, DOE and DOD environmental programs, and base closure transition and implementation programs.

Before joining the staff of the Senate Armed Services committee, Ms. Creedon was a trial attorney and Acting Assistant General Counsel for special litigation with the DOE Office of the General Counsel for 10 years.

Born and raised in Indianapolis, Indiana, Ms. Creedon is a graduate of St. Louis University School of Law, where she was captain of the moot court team. Her undergraduate degree is in political science from the University of Evansville, Evansville, Indiana.

HOUSE COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES

STATEMENT OF
GENERAL C. R. KEHLER
COMMANDER
UNITED STATES STRATEGIC COMMAND
BEFORE THE
HOUSE COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES
17 APRIL 2012

HOUSE COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES

Chairman Turner, Ranking Member Sanchez, and distinguished members of the subcommittee, thank you for the opportunity to testify today. I'm very pleased to be here with Madelyn Creedon, Assistant Secretary of Defense for Global Strategic Affairs—a great colleague and someone with tremendous insight into U.S. strategic policy and programs. I'm also glad that a little later you'll have the opportunity to hear from NNSA Administrator Tom D'Agostino, Acting Assistant Secretary for the Office of Environmental Management David Huizenga, and Mr Peter Winokur, Chairman of the Defense Nuclear Facilities Safety Board.

Since I assumed command a little more than a year ago, we have been challenged by new fiscal constraints at home and complex national security events abroad. I am very proud of how our men and women in uniform and Defense civilians are meeting these financial and operational challenges with professionalism, dedication, and a keen mission focus. I know our team members very much appreciate your support, and I look forward to working with you as we maintain the world's finest military, avoid a hollow force, and make strategy-based capability decisions, all the while keeping faith with our all-volunteer force.

Introduction. Today, I am pleased to report to you that America's Strategic Command is strong, resilient, and ready. At USSTRATCOM, we continue to improve our capabilities and synchronize our multiple mission responsibilities—individually and with our partners in the other Combatant Commands (CCMDs)—to deter strategic attacks, to enhance the combat capability of the joint force, and to assure access and use of the critical domains of space and cyberspace. I look forward to discussing the global strategic environment, the new Defense Strategic Guidance, and

Commander USSTRATCOM Priorities

- Deter nuclear attack with a safe, secure, and effective nuclear deterrent force.
- Partner with the other combatant commands to win today
- Respond to the new challenges in space
- Build cyberspace capability and capacity
- Prepare for uncertainty

how USSTRATCOM's strategic deterrence and assurance efforts support the *National Security Strategy*.

STRATEGIC CONTEXT

Without question, we face a very challenging global security environment. The coming years are likely to be characterized by constant change, enormous complexity, and profound uncertainty. Since my last appearance before the committee, we have witnessed our fair share of change. The Budget Control Act of 2011 realigned national fiscal priorities. U.S. forces withdrew from Iraq, and they partnered with our allies to support the Libyan people. The Arab Spring brought dramatic change to an unsettled region, and tensions grew inside Syria and between Iran and the world. In North Korea, Kim Jong Il's death made way for a new generation in power. And, violent extremists suffered several setbacks—most notably Osama bin Laden's death.

Some of these events were positive; some were not. For some, the outcome remains uncertain. In a few cases we were surprised and, looking forward, surprise is one of the greatest dangers we will face. Indeed, violent extremism, popular revolutions, persistent conflict, financial stress, competition for natural resources, and the transition and redistribution of power among global actors will continue to bring uncertainty to our national security landscape.

Hybrid Conflict. Conflict remains a fundamentally human enterprise conducted for political purposes. Yet, technology and ideology are pushing its means and methods in new and evolutionary directions at an ever-increasing pace. At USSTRATCOM, we believe we can glimpse the future of conflict if we look carefully today, so that we can prepare.

First, conflict will encompass all domains—including air, sea, land, space, and cyberspace—all tied together through the electromagnetic spectrum. Second, it will cross traditional geographic boundaries—particularly with the emergence of new cyber weapons, the increased use of space, and the proliferation of familiar weapons like ballistic missiles. Third, it will involve multiple participants. A wider range of actors has access to advanced capabilities with lower entry costs, seeking to challenge us from the shadows. Finally, conflict will be hybrid—not neatly categorized as "regular" or "irregular" warfare. More actors, leveraging combinations of capabilities, strategies, and tactics—potentially including weapons of mass destruction (WMD)—will seek to achieve their goals by denying or disrupting our nation's ability to project power and maintain global awareness across all domains.

These are sobering challenges. Hybrid, technologically advanced, and cross-domain threats can reach our doorstep in seconds, threatening vital capabilities and critical infrastructure. The same networks that enable global commerce, navigation, and communication also present tremendous potential for disruption. In particular, cyber tools combined with phenomenal increases in computing power may have surpassed the threat posed by more traditional means of espionage, presenting particularly problematic economic and national security challenges.

The time honored military concepts surrounding speed and distance have also changed, increasing the speed at which initiative can shift, compressing our decision space, and stressing our strategies, plans, operations, and command relationships. Centuries ago, it could take months to influence an adversary by moving an army. However, navies, then airpower, and now space and cyberspace capabilities dramatically compressed the time and distance required to create effects. Adversaries today need not occupy any territory to create disruptive and potentially decisive strategic effects across domain and geographic boundaries. We should not expect adversaries to leave our homeland completely undisturbed while we operate globally.

New Strategic Approach. In such a complex and profoundly uncertain world, sustaining the strategic stability that enables security at home, global commerce for our nation, and freedom of action within the global commons requires great resilience and deep integration. The threats we face are not divisible by geography or domain. We must meet them with a similarly indivisible joint force—the strength of which lies not in its parts, but in their sum.

Our challenges demand strategic thinking, unity of action, joint interdependence, commander focus, flexibility, decentralized execution, and innovation. They also require a robust, strategic imagination that allows us to anticipate the unexpected and to react to surprise in stride when—not if—it occurs. As a result, at USSTRATCOM we are emphasizing that every plan and operation must be well integrated with other combatant commands. We must work together, across other CCMDs and interagency partners, to shape the environment away from conflict, to assure our allies, to expand our leaders' decision space, and to protect our nation's global access and freedom of action.

As the U.S. transitions from a decade of conflict abroad and acts to sustain its leadership in the world, we are guided by a new strategic approach entitled *Priorities for 21st Century Defense*. We understand that we will face the future with a joint force that is smaller, but also more agile, flexible, ready, and technologically advanced. We will have a global presence, emphasizing the Asia Pacific region and the Middle East, while preserving key commitments elsewhere and our ability to conduct primary missions to protect our core national interests.

The new defense strategic guidance establishes priorities and delineates ten primary missions of the U.S. Armed Forces—most of which have particular relevance to USSTRATCOM. For **Counterterrorism and Irregular Warfare**, USSTRATCOM provides space, ISR, precision strike, and cyber support. As we fulfill our responsibility to **Deter and**

Defeat Aggression, we are developing tailored, 21st century deterrence options to address a wider range of adversaries across the spectrum of conflict. USSTRATCOM's global capabilities also enhance the ability of the joint force to **Project Power Despite Anti-Access and Area-Denial Challenges**, perhaps our greatest military advantage. This supports deterrence at all levels. USSTRATCOM plays a key role in DOD efforts to **Counter Weapons of Mass Destruction**, synchronizing planning, advocating for capabilities, and delivering expertise to other commands. In closely linked, technologically advanced national security areas we ensure America's ability to **Operate Effectively in Cyberspace and Space** each and every day. Here we face real threats to our systems and networks—threats that are growing and require continued vigilance, improvement, and resilience. As we work to **Maintain a Safe, Secure, and Effective Nuclear Deterrent,** the strategy says "we will field nuclear forces that can under any circumstances confront an adversary with the prospect of unacceptable damage both to deter potential adversaries and to assure U.S. allies and other security partners that they can count on America's security commitments." The professionals in USSTRATCOM perform the nuclear deterrence mission every day. Finally, and while principally the role of geographic CCMDs, we support a wide range of efforts to **Defend the Homeland and Provide Support to Civil Authorities**, including our cybersecurity assistance to the Department of Homeland Security and missile defense programs.

Primary Missions of the U.S. Armed Forces

- **Counterterrorism and Irregular Warfare**
- **Deter and Defeat Aggression**
- **Project Power Despite Anti-Access/Area-Denial Challenges**
- **Counter Weapons of Mass Destruction**
- **Operate Effectively in Cyberspace and Space**
- **Maintain a Safe, Secure, and Effective Nuclear Deterrent**
- **Defend the Homeland and Provide Support to Civil Authorities**
- Provide a Stabilizing Presence
- Conduct Stability and Counterinsurgency Operations
- Conduct Humanitarian, Disaster Relief, and Other Operations

These are not the only primary missions mentioned in the new strategy. As a supporting command, USSTRATCOM also regularly contributes to CCMD efforts to provide a stabilizing presence; to conduct stability and counterinsurgency operations; and to conduct humanitarian, disaster relief, and other operations.

In sum, the new strategy calls for a strategic approach that promotes agile, decentralized action from fully integrated—I would say fully interdependent—and resilient commands and joint forces. And, over the last decade, our joint force has made great strides integrating unique Service and interagency capabilities. Our joint forces have become more integrated, and our joint commands have become more interdependent—producing greater unity of effort. Since the threats we face are not necessarily divisible by geography or domain, integration that advances cross-domain synergy[1] is imperative.

Achieving effective joint force synergy was a key principle in the strategy that shaped Fiscal Year 2013 budget requirements. Implementing the new strategy in a period of fiscal constraints is a substantial challenge, but I am confident that we can recalibrate our capabilities and make selective additional investments to succeed in these mission areas, based on priorities outlined in the strategy. This is the right approach.

U S. STRATEGIC COMMAND TODAY

Over the last decade, USSTRATCOM's responsibilities have grown in size and scope, responding to evolving national security needs. Ten years ago this fall, DOD disestablished both U.S. Space Command[2] and the first U.S. Strategic Command[3]—merging them and beginning the development of USSTRATCOM with its broad, functional responsibilities. Within just the past year, the Secretary of Defense added to our duties by reassigning the Joint Warfare Analysis Center[4] to USSTRATCOM. We also returned several "information operations" responsibilities to the Joint Staff, such as planning, coordinating, and executing cross-AOR and national-level operations, supporting other combatant commands' planning efforts, and advocating for military deception and operations security capabilities. This realignment of responsibilities allows us to better focus on the enduring joint electronic warfare and electromagnetic spectrum mission.

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[1] Cross domain synergy: "The complementary vice merely additive employment of capabilities in different domains such that each enhances the effectiveness and compensates for the vulnerabilities of the others—to establish superiority in some combination of domains that will provide the freedom of action required by the mission." *Joint Operational Access Concept*, Foreword.

[2] A unified combatant command responsible for military space activities and (at the time) the relatively new computer network operations mission.

The long series of changes begun in 2002 might appear random, but it was not. Moving missions of global significance and trans-regional impact to a single combatant command allows one organization to apply a global, strategic perspective to unique problem sets and to gain synergy from a range of strategic capabilities. USSTRATCOM is now able to provide our national leaders with a range of strategic, operational, and tactical options and capabilities that contribute to deterrence and enhance the effectiveness of the joint force.

Today, USSTRATCOM exists to perform two fundamental missions: 1) to deter attack and assure our allies with a combination of capabilities that goes far beyond the nuclear force; and, 2) along with the other CCMDs, to employ force as directed to achieve national security objectives. The complementary (not merely additive) nature of USSTRATCOM's unique, strategic responsibilities allows us to wield formidable global capabilities every day, usually as a supporting command (and usually supporting multiple commands simultaneously), supporting global and regional deterrence and assurance activities.

USSTRATCOM Mission

USSTRATCOM conducts global operations in coordination with other combatant commands, Services, and U.S. government agencies to deter and detect strategic attacks against the U.S. and its allies, and is prepared to defend the nation as directed.

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[3] A unified combatant command activated in 1992, solely focused on the nuclear deterrence and associated command and control missions.

[4] Formerly assigned to U.S. Joint Forces Command, JWAC is headquartered at Naval Support Facility Dahlgren, VA.

For example, USSTRATCOM provided several of America's unique B-2 bombers to U.S. Africa Command to support last year's Operation ODYSSEY DAWN—quickly providing an essential capability not otherwise available in that command. After the tragic events in Japan, USSTRATCOM also delivered substantial modeling and communications support to U.S. Pacific Command's (USPACOM) Operation TOMODACHI recovery efforts. Finally, later this year and in recognition of emerging Asia-Pacific challenges, we will co-host a major exercise with USPACOM to test and demonstrate joint capability and command interdependence, as we continue to explore and refine opportunities for greater collaboration.

These and many other scenarios highlight how the interdependent combination of capabilities and synchronization of activities within USSTRATCOM and with the other CCMDs facilitates a more flexible and effective joint force effort. To that end, our staff is developing and implementing a more comprehensive and deliberate deterrence and assurance campaign to sustain our capabilities, synchronize our efforts, and position us to act as needed.

DETERRENCE AND ASSURANCE

Deterrence and assurance have been part of the national lexicon for well over half a century, and although different today, they remain important and highly relevant concepts. The Cold War ended 20 years ago. Today, deterrence and assurance are not solely about Cold War deterrence objectives, they are about our nation's unique security needs—in a world that still has nuclear weapons. Deterrence is fundamentally about influencing an actor's decisions. The deterrence decision calculus still revolves around familiar concepts like imposing costs and denying benefits; however, in today's world we also strive to highlight the consequences of restraint (benefits of the status quo).

Deterrence is about communicating our capabilities and intentions, and it is about more than just one weapon system. It is about what the U.S. and our allies as a whole can bring to bear, tailored to specific actors and threats. Its practice encompasses both the nuclear and a strong conventional offensive force, missile defenses where appropriate, unfettered access and use of space and cyberspace, and, in all warfare areas, modern capabilities that are resilient and sustained. Our challenge is to apply deterrence and assurance concepts to today's complex global security environment. Deterring, detecting, and preventing attacks against the U.S. is the responsibility of every combatant commander, and although strategic deterrence is USSTRATCOM's particular responsibility, it is a global charge we carry out in close coordination with other CCMDs and elements of government.

For decades, "strategic deterrence" focused solely on leveraging U.S. nuclear capabilities to deter our adversaries, but that day—the era of "one size fits all" deterrence and assurance—has passed. Strategic deterrence today requires combinations of tailored options and capabilities, wielded across multiple commands as an integrated whole, based on a robust understanding of the adversary's decision calculus and our mission context. It requires faster output from our intelligence, strategy, and planning experts. This is not easy. We must shape deterrence approaches that communicate expectations, strength, and resilience well in advance of adversary decisions, taking every opportunity to better understand each actor's expectations and perceptions—particularly in space and cyberspace.

Combating Weapons of Mass Destruction (CWMD). The threat posed by WMD in the hands of violent extremists transcends all of USSTRATCOM's priorities and encompasses every geographic area of responsibility (AOR). The *2010 National Security Strategy* states that "there is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states."[5] Published shortly thereafter, the 2010 *Nuclear Posture Review* (NPR) noted that 21st century nuclear dangers are "grave and growing threats." Nuclear weapons foster a sense of strategic stability between some actors, but WMD in general remain dangerously alluring capabilities to rogue and non-state actors.

The NPR elevated the prevention of nuclear proliferation and nuclear terrorism to the top of the policy agenda as it outlined five objectives to guide the U.S. in reducing global nuclear dangers. USSTRATCOM plays a principal role in efforts to reduce nuclear dangers by deterring WMD usage, dissuading their acquisition, and supporting efforts to eliminate potential WMD threats. This is a great challenge, and we are working to ensure our sense of urgency and pace of preparation match the threat.

2010 Nuclear Posture Review Objectives

- Preventing nuclear proliferation and nuclear terrorism
- Reducing the role of nuclear weapons in U.S. national security strategy
- Maintaining strategic deterrence and stability at reduced nuclear force levels
- Strengthening regional deterrence and reassuring U.S. allies and partners
- Sustaining a safe, secure, and effective nuclear arsenal

We have unique CWMD responsibilities at USSTRATCOM. We synchronize global CWMD planning efforts across the CCMDs, work to improve interagency relationships, and synchronize advocacy for essential CWMD capabilities. Our semi-annual global CWMD synchronization conferences have highlighted the need to improve coordination and to expand foundational intelligence and information sharing to deter and address emerging threats. This includes accelerating the speed with which we develop and field capabilities like stand-off detection for nuclear materials, better nuclear forensics, and improved global situational awareness.

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[5] *National Security Strategy of the United States*, pp. 4.

One important CWMD development in the past year was the activation of USSTRATCOM's Standing Joint Force Headquarters for Elimination (SJFHQ-E). SJFHQ-E stood up officially on 3 February 2012[6] and is commanded by the two-star officer who is also deputy director of the USSTRATCOM Center for Combating WMD (SCC WMD)[7]. When fully operational next year, SJFHQ-E will be a full-time, trained, deployable, joint command and control element able to quickly integrate into an operational HQ, conduct both deliberate and crisis planning, and maintain awareness of the WMD environment. This small standing headquarters will be augmented when needed and will operate in close coordination with the Defense Threat Reduction Agency and the U.S. Army's 20th Support Command.

Nuclear Deterrence. Ensuring a safe, secure, and effective nuclear deterrent force remains a core responsibility of USSTRATCOM and is my #1 priority. As stated in the NPR, nuclear weapons retain an important role in our country's defense. They represent a unique, relevant, and powerful deterrent capability even as their role changes. Nuclear deterrence remains a tremendously important component of strategic deterrence as we seek to influence adversary decision makers by communicating a credible capability.

We have witnessed an impressive, 65-year period with neither nuclear use nor great-power war, during which we regularly adjusted our nuclear capabilities to match the global environment. Since the end of the Cold War, we significantly altered our own nuclear force structure and posture. We reduced the total number of ballistic missile submarines (SSBNs), converted four Ohio-class SSBNs to carry conventional cruise missiles, affirmed the B-1 bomber's non-nuclear role, removed all dual-capable heavy bombers from nuclear alert, eliminated the Peacekeeper Intercontinental Ballistic Missile (ICBM), substantially reduced the

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[6] Our goal is for SJFHQ-E to reach full operational capability by the end of 2013.

[7] Located at Ft. Belvoir, VA, SCC WMD is co-located with the Defense Threat Reduction Agency (DTRA). Mr. Ken Myers serves as the SCC WMD Director, as well as the DTRA Director.

Minuteman ICBM force, withdrew numerous weapons abroad, and dramatically reduced our nuclear stockpile. In total, our stockpile is down over 75% from the day the Berlin Wall fell.

These are significant changes. At each decision point along the way, the U.S. carefully accounted for potential impacts on deterrence capability and strategic stability. The end result is a substantially smaller force but one in which confidence remains to deter adversaries, assure allies, and maintain strategic stability in a crisis.

USSTRATCOM operates the nuclear deterrent force and is responsible for nuclear weapon employment planning. I can assure you that today's weapons and Triad of delivery platforms are safe, secure, and effective. The Triad—SSBNs, ICBMs, and nuclear-capable heavy bombers, with their associated tankers—continues to serve us well by providing unique and important attributes (survivability, promptness, and flexibility) that create insurmountable problems for any would-be adversary. Moving forward, and to sustain our strong nuclear deterrent force, we fully support the continued modernization and sustainment of delivery systems, weapon life extension programs, stockpile surveillance activities, nuclear complex infrastructure recapitalization, naval reactor design activities, and upgrades for nuclear command, control, and communications (NC3) capabilities. We are also working across DOD to finalize and synchronize New Strategic Arms Reduction Treaty (New START) implementation decisions routine operations and maintenance to minimize impacts on the operational force. We are on track to fully implement the central limits of New START by February 5, 2018.

As we consider possible future changes, I remain committed to the principle that a well-defined strategy must ultimately drive nuclear force structure and posture. USSTRATCOM is a full participant in the analysis of future deterrence requirements called for in the NPR, and we are providing military operational advice regarding implications of alternative approaches. Let me briefly review today's nuclear force.

Weapons. Over the past few years, a national consensus emerged around the need to modernize our weapons, delivery platforms, and the programs and facilities that sustain them. Since assuming command, I visited each of the nation's nuclear laboratories[8] and key industrial facilities. Seeing the condition of our nation's nuclear facilities and meeting the dedicated people who are the actual stewards of our nuclear weapons stockpile provided me a unique and irreplaceable appreciation for their needs.

As our weapons continue to age and we face the continued erosion of the nuclear enterprise's physical and intellectual capital, we must protect important investments for stockpile certification, warhead life extension, and infrastructure recapitalization. These investments are central to the new *Priorities for 21st Century Defense*, and without them, maintaining the long-term credibility and viability of the nation's nuclear deterrent will not be possible. Of all the elements of the nuclear enterprise, I am most concerned with the potential for declining or inadequate investment in the nuclear weapons enterprise that would result in our inability to sustain the deterrent force.

Ballistic Missile Submarines (SSBNs). The Navy's SSBNs and sea-launched Trident D-5 ballistic missiles constitute the Triad's most survivable leg. This stealthy and highly-capable force requires modernization to replace aging and hull life-limited Ohio-class ballistic missile submarines. Although the Ohio-class replacement program will now be delayed by two years, the risk will be manageable. We must continue necessary preparatory activities and work to develop and field the Common Missile Compartment for both the Ohio-class replacement and the United Kingdom's Vanguard follow-on submarines. With your support, I am confident that today's approach described in the FY 2013 budget request will continue the sea-based leg's strong deterrent capability.

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[8] Los Alamos National Laboratory (NM), Sandia National Laboratory (NM), and Lawrence Livermore National Laboratory (CA).

Intercontinental Ballistic Missiles (ICBMs). The Air Force's widely dispersed Minuteman III ICBMs comprise the Triad's most responsive platform leg, and the Air Force is successfully concluding efforts to sustain the Minuteman III force through 2020 and to enhance safety and security for the foreseeable future. USSTRATCOM is working with the Air Force to support life-extension programs to sustain the force through 2030. We are also participating in the Ground Based Strategic Deterrent Analysis of Alternatives to study the full range of concepts to eventually inform a decision to recapitalize the land-based Triad leg.

Heavy Bombers. While the nation relies on the long-range conventional strike capability of our heavy bombers, their nuclear capability continues to provide us with critical flexibility and visibility, as well as a rapid hedge response against technical challenges in other legs of the Triad. Planned sustainment and modernization activities will ensure a credible nuclear bomber capability through 2035. Looking forward, a new, penetrating bomber is required to credibly sustain our broad range of deterrence and strike options beyond the lifespan of today's platforms. The budget supports this effort, and USSTRATCOM is working with the Air Force to develop requirements for the next dual-capable (nuclear and conventional) long-range strike platform and associated Long Range Stand-off missile. The Air Force is also replacing the aging KC-135 tanker fleet with the KC-46A, ensuring an enduring air refueling capability essential to long-range bomber operations and airborne nuclear command and control platform endurance.

Nuclear Command, Control, and Communications (NC3). In many ways, the NC3 component of the nuclear deterrent force is the most problematic. Ensuring continuously available and reliable communication from the President to the nuclear force is fundamental to our deterrence credibility. As with many systems and capabilities across our force structure, various NC3 components require modernization. Through smart investment and programming decisions, leveraging existing and emerging technologies, and in partnership across the department and interagency, we can achieve a robust and resilient 21st century NC3 architecture that both ensures this critical communication chain remains protected and is capable of addressing a broader range of threats and operational requirements. Within this context, I want to convey my appreciation for Congress' focus on NC3, and specifically Fiscal Year 2012 support for the new USSTRATCOM Headquarters Command and Control Complex at Offutt Air Force Base.

As we pursue deterrence and assurance concepts in today's complex global security environment, we recognize that a broad range of capabilities must contribute to tailored options. We believe the full range of capabilities assigned to USSTRATCOM comprise our deterrence "tool kit." Each of these also contributes to daily operations and activities that enhance the combat capability of the joint force. Let me briefly describe the status of other capability areas:

Intelligence, Surveillance, and Reconnaissance (ISR). In a global environment characterized by complexity, asymmetric threats, and uncertainty, detecting and understanding adversary plans, intentions, and warning indicators has never been more important. As ISR technologies and platforms have improved in both the quality and quantity of data collected, we have seen a steadily increasing demand for ISR collection to meet routine and crisis requirements. Through our Joint Functional Component Command for ISR (JFCC ISR),[9] USSTRATCOM's leadership in managing DOD's ISR capabilities and in assessing ISR performance has been pivotal to meeting today's intelligence challenges.

As our global knowledge demands expand, orchestrating our ISR operations to gain greater effectiveness and efficiency is increasingly necessary and challenging. First, preventing strategic surprise requires unparalleled battlespace awareness. Second, the demand for ISR collection continues to outpace our ability to fully resource that demand. Therefore, we must refine our ISR global force management processes and hone our collection strategies to improve our agility and effectiveness, making our ISR capabilities even more responsive combat multipliers.

Our ability to process and analyze data from increasingly capable ISR platforms is also a growing challenge. Not only are analysts dealing with more data, but also with an increased operations tempo that imposes ever greater demands on the timeliness of their analyses and reporting. Conservative estimates predict a one hundred percent increase in analysts is necessary to meet our combatant commanders' requirements. This level of growth would be unrealistic in almost any environment, let alone a fiscally constrained one, driving us to seek further efficiencies and concepts to get more from our existing analytic enterprise.

A key to doing this will be to improve data management, increase computing power and capability to help the analysts, and manage ISR processing, exploitation, and dissemination (PED) more effectively. Our intent is to manage resources globally while maintaining regional and local focus. This will ensure we can move faster to our highest priorities during and between emerging crises and contingencies, guaranteeing knowledge dominance for our commanders.

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[9] Located at Joint Base Anacostia-Bolling (JBAB), DC. LTG Burgess is the Director of DIA and is dual-hatted as CDR JFCC ISR.

JFCC-ISR has been pursuing these goals, and their efforts paid dividends during the recent simultaneous intelligence demands imposed by Libyan operations, the Japanese reactor crisis, and the Afghanistan surge. While our vectors are in the right direction, we must continue to build our ISR concepts and processes to be even more agile and effective in the future.

Global Strike. USSTRATCOM is responsible for planning, coordinating, and executing global strike activities (kinetic nuclear, kinetic conventional, and non-kinetic) and advocating for required capabilities. Global strike capabilities allow DOD to expand the range of integrated deterrent options available to the President and enable combatant commanders' access to capabilities not otherwise available in their particular AOR. USSTRATCOM's unique strategic capabilities enable us to rapidly support national and theater global strike missions in a number of ways.

In addition, USSTRATCOM continues to support and advocate for a rapid conventional strike capability. This would enhance strategic deterrence with the ability to promptly deliver a non-nuclear effect against a limited subset of highest value targets at substantial ranges. The Air Force, Defense Advanced Research Projects Agency (DARPA), and the Army have made important progress developing non-ballistic, boost-glide technologies applicable to a Conventional Prompt Global Strike (CPGS) mission, as highlighted by the Army's successful flight test of the Advanced Hypersonic Weapon concept this past November. I ask for your continued support of research, development, test, and evaluation funding as we explore various conventional global strike system concepts and basing alternatives.

Integrated Missile Defense (IMD). Ballistic missiles remain a significant threat to the U.S. homeland and a growing threat to our allies and our forces deployed abroad. As a means of terror, or to deter U.S. or allied regional intervention, or as a trans-regional means to employ

WMD, ballistic missiles continue to become more accurate, lethal, and capable—attractive attributes to any number of current or potential adversaries.

In response, U.S. and allied capabilities to deter, detect, and defeat these weapons are also growing, and decades of research and development continue to pay dividends in terms of capability and credibility. And, as we consider a more integrated joint force, missile defense is an area that particularly highlights the importance of considering the full range of integrated strategic capabilities—since ballistic missile threats can rapidly transit areas of responsibility and may perhaps best be deterred or defeated via space, cyberspace, or global strike capabilities long before their launch requires action from regionally-based interceptors.

Ballistic missile threats are likely to grow at least as rapidly as our defensive assets, and we have little margin for error in acquisition and force management decisions. USSTRATCOM plays important roles coordinating operational support and synchronizing missile defense planning, operating concepts, and capability advocacy. Our Joint Functional Component Command for Integrated Missile Defense (JFCC IMD)[10] leads an annual global ballistic missile defense assessment to look across all areas of responsibility, consider individual combatant commanders' assessments of risk, find common threads, and make recommendations to reduce global risk. USSTRATCOM also coordinates the Air and Missile Defense Prioritized Capabilities List (PCL) across other CCMDs, improving the Services' and the Missile Defense Agency's (MDA) understanding of prioritized joint warfighter capability needs. This enhances efforts to provide persistent detection; expand data sharing among the U.S., allies, and partners; field effective defensive systems; and provide appropriately robust joint training. As the Joint Functional Manager for missile defense capabilities, JFCC IMD recommends the global allocation of low-density, high-demand assets, including force rotations, and force sufficiency—thus making the best use of limited resources.

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[10] Located at Schriever AFB, CO. LTG Formica serves as CDR JFCC IMD, as well as Commanding General U.S. Army-Strategic (ARSTRAT) and Army Space and Missile Defense Command (SMDC).

Over the past year, these efforts substantially improved our overall missile defenses. We upgraded and integrated early warning radars in Greenland and England, improving battle-management software for data integration. We increased the number of Aegis BMD-equipped ships. And, we fielded and integrated additional elements of the European Phased Adaptive Approach (EPAA), an effort that improves missile defenses through the acquisition and integration of more advanced capabilities and the expansion of key partnerships.

In specific cases, such as limited threats against the U.S. and/or regional contingencies, our growing missile defenses play important deterrence and assurance roles. The application of future Phased Adaptive Approaches to other regions is an integral part of theater defenses, and we must continue to strengthen regional partnerships to meet emerging ballistic missile threats. I am confident that planned and budgeted missile defense investments will continue to support deterrence and assurance goals by significantly improving the protection of our homeland, our forward-based forces, and our allies. USSTRATCOM is committed to future capability development efforts that leverage past successes, address the most pressing and most likely threats, and produce field-tested, reliable assets in a cost-effective manner.

Electromagnetic Spectrum (EMS) and Electronic Warfare. The EMS is the connective tissue for literally every aspect of civil, commercial, and military activity. For example, signals flowing through the spectrum connect airborne ISR aircraft to the ground troops they support, to the fleet offshore, and to commanders anywhere in the world. We are all linked, in an increasing number of ways, to modern technological necessities whose very design assumes unfettered access across the spectrum. Yet, this access is something we assume with increasing risk, particularly for the closely linked national security areas of space and cyberspace.

Today, there are three general concerns regarding the EMS. First, increased demand for interconnectivity and a growing base of EMS “users” is creating pressure to make greater segments available for public use. Second, growing use is creating “crowding” in the EMS—a problem that can result in inadvertent interference of civil, commercial, and military activities alike. EMS use priorities must be carefully managed to ensure access for force training, readiness, and operations. Finally, our growing civil, commercial, and military reliance on the electromagnetic spectrum presents adversaries an opportunity. We must assume adversaries will seek disruptive or destructive EMS capabilities to obtain their own asymmetric edge. At a time when no single discipline or command can address any conflict alone, efforts to strengthen integration, ensure persistent spectrum access where and when we need it, and deter adversary disruption or exploitation are important deterrence and assurance objectives.

To improve joint approaches to the electromagnetic spectrum, USSTRATCOM is focusing its enduring electronic warfare and electromagnetic spectrum responsibilities by establishing the Joint Electromagnetic Spectrum Control Center (JEMSCC). The JEMSCC will expand previous joint electromagnetic spectrum operations efforts, effectively organizing a single warfighter organization to advocate for and support joint electronic warfare capability strategy, doctrine, planning, requirements, resources, test, training, and operational support. The JEMSCC will place a particular focus on the coordination of electromagnetic spectrum-related elements to enhance joint war fighting capabilities across domains and our ability to fight through degraded environments.

National Security Space Strategy

- Promote responsible, peaceful, and safe use of space;
- Provide improved U.S. space capabilities;
- Partner with responsible nations, international organizations, and commercial firms;
- Prevent and deter aggression against space infrastructure that supports U.S. national security; and
- Prepare to defeat attacks and to operate in a degraded environment

Space. The *National Security Space Strategy* highlights the importance of U.S. leadership for the global economy, scientific discovery, modern necessities, our national security, and global strategic stability. Though increasingly contested, congested, and competitive, space remains the ultimate high ground, and ensuring access to mission-essential space capabilities through all phases of conflict is essential to maintaining and enhancing the strategic advantages space provides. Mindful of the need to maintain and enhance space's benefits for our national security enterprise, particularly in light of today's dynamic operating environment, the *National Security Space Strategy* identified a set of interrelated strategic approaches designed to sustain not just America's leadership in space but our ability to provide benefits for global navigation, commerce, communication, and research. As the combatant command responsible for military space operations, support, and capability advocacy, USSTRATCOM fully supports these approaches and is actively pursuing capability and cooperative improvements.

The space domain physically borders every geographic area of responsibility and shares virtual boundaries with cyberspace. It is vital to monitoring strategic and military developments, responding to natural and man-made disasters, and understanding environmental trends. In short, space systems provide unfettered global access. However, we cannot assume that our space advantages will automatically continue. Today's constellations continue to age and require replacement, and although we still maintain a qualitative edge, technological diffusion and the sheer number of spacefaring nations could place our space advantages at risk. Our assets also face a range of challenges from both natural or unintentional man-made threats (space weather, accidental collisions, and inadvertent electromagnetic interference) and purposeful jamming, cyber intrusions, interference, anti-satellite weapons, and kinetic attack (on space- or terrestrial-based space assets).

Sustaining U.S. advantages in the space domain requires that we act deliberately to enhance our own military advantage and to reduce strategic risk—both of which require broad collaboration across the U.S. government and with our international partners. We must comprehensively assess the space capabilities we require to sustain our military advantage—focusing on cross-service and cross-organization capabilities to secure the greatest value. This includes working with the Services to refine and communicate clear, well-defined, and realistic requirements for each capability, mindful that the long-term strategy for assured access to space relies on a capable national industrial base. We must also take advantage of opportunities to work with other partners. For example, in January U.S officials announced a 20-year agreement that will add Canada, Denmark, Luxembourg, the Netherlands, and New Zealand to our current partnership with Australia for global military satellite communications. Now shared with these additional partners, the Wideband Global Satellite Communications (WGS) program provides high-capacity communications for many more military users, and this agreement expands the program to secure a planned, ninth satellite.

Reducing risks to space assets begins with situational awareness. Establishing and maintaining situational awareness in this vast, global domain is fundamental. It is also problematic. Each orbital regime presents its own unique challenges, and space is a harsh and technically challenging environment. Over the past several years, the Joint Space Operations Center (JSpOC) under the direction of our Joint Functional Component Command for Space

(JFCC SPACE)[11] has made great progress expanding the number of objects tracked, the number of satellite close-approaches analyzed, and the number of partners involved in the space situational awareness sharing process. We currently track more than 22,000 orbiting objects, and the JSpOC Mission System (JMS) and additional sensors contained in the FY 2013 budget request will further improve our ability to detect smaller objects (increasing the number of objects tracked) and the frequency and fidelity of analyses (further contributing to the safety of space flight). Agreements that allow us to expand space surveillance and communication access points and data sharing hold great promise for improving shared space situational awareness and operational effectiveness. Additional sharing agreements, particularly those that lead to the eventual transition of the JSpOC into a truly international Combined Space Operations Center (CSpOC), have great potential to demonstrate space leadership and expand information available to all users. Finally, clearly communicating expectations and a shared understanding of space norms and responsibilities among space-faring nations will provide an important foundation for deterring undesirable aggression against space capabilities.

Cyberspace. Few might ever have imagined how cyberspace would evolve—globally connected and geographically unconstrained—to define modern life for billions of people. Not only have we woven cyberspace into nearly every facet of our personal lives, it has also become essential to the functioning of the global economy and military operations across all domains. In cyberspace we seek to conduct commerce, share information, learn, and entertain. But, through cyberspace others seek to vandalize, steal, disrupt, and, potentially, to destroy. In the military, we rely on many domains or capabilities with the reasonable expectation that we can secure them when required. However, in cyberspace, and across the broader electromagnetic spectrum, we find ourselves almost completely reliant on something we will likely never completely secure. Dealing with that reality is an extraordinary challenge.

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[11] Located at Vandenberg AFB, CA. Lt Gen Helms serves as CDR JFCC Space as well as Commander, 14th Air Force.

This reliance, like all of our technological advantages, is also clear to potential adversaries who are seeking to use cyberspace as a means to act against U.S. data, forces, or critical infrastructure—particularly shared network infrastructure. Our challenge is to deploy resilient capabilities, sufficient capacity, and effective defenses that preserve access to our technological advantages by securing critical resources and preparing to operate and deliver effects—even when under threat of cyber intrusion.

The *Department of Defense Strategy for Operating in Cyberspace* outlines five strategic initiatives to focus efforts to leverage cyberspace's tremendous opportunities while managing its dynamic nature and vulnerabilities. USSTRATCOM is responsible for operating and defending DOD information networks, planning against designated cyberspace threats, executing cyberspace operations as directed, advocating for cyberspace capabilities, and synchronizing activities with other combatant commands and agencies. In addition to our substantial work maturing the cyber mission, forces, capabilities, and relationships, we are continuing to improve operating concepts to better address cyberspace threats and support combatant commands. While much remains to be done, we have made substantial progress, and

DOD Strategy for Operating in Cyberspace

- Treat cyberspace as an operational domain to organize, train, and equip so that DOD can take full advantage of cyberspace's potential
- Employ new defense operating concepts to protect DOD networks and systems
- Partner with other U.S. government departments and agencies and the private sector to enable a whole-of-government cybersecurity strategy
- Build robust relationships with U.S. allies and international partners to strengthen collective cybersecurity
- Leverage the nation's ingenuity through an exceptional cyber workforce and rapid technological innovation

CYBERCOM continues to play an essential role operating and defending DOD's information networks.

Moving forward, we must continue to improve situational awareness and clarify the global roles, responsibilities, expectations, and authorities that contribute to stable and effective deterrence and assurance. Effective defensive and offensive preparation begins with situational awareness. Threats in cyberspace are anything but static, and a useful defensive strategy or capability existing one moment may be ineffective mere seconds later, and improved relationships and technical capabilities allow us to better understand the dynamic cyber environment. Gaining this awareness and then acting quickly and effectively requires improving the complex interagency and international relationships. Cyber security requires the entire government's effort. No single agency or department can effectively address the threats we face in cyberspace; we must constantly evaluate relationships and operational constructs to address constantly evolving threats. The recent Defense Industrial Base (DIB) Pilot program is a great example of the benefits of partnership and the type of activity we look forward to furthering in the future.[12]

Finally, in all of USSTRATCOM's unique functional mission areas, but particularly in cyberspace, I am concerned about sufficient technical capacity and personnel. We must ensure information technology capabilities are fielded with sufficient capacity and in a more resilient, defensible structure that still reaps as many benefits as possible from the open nature of the internet. Furthermore, we need the best trained and educated people to work our cyberspace challenges, and growing tomorrow's cyberspace professionals is fundamentally about education. Ensuring our future security in cyberspace—and really across USSTRATCOM's strategic responsibilities—begins with efforts to encourage and improve science, technology, engineering, and math education from an early age. It also includes the recognition that traditional military recruitment and retention programs may not be the best or fastest way to build a stable cyber cadre for the long term.

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[12] The DIB pilot completed transitioning to the Department of Homeland Security this January and is now called the Joint Cybersecurity Pilot (JCSP).

OUR PEOPLE

At USSTRATCOM, we recognize that our people are our greatest and most enduring strength. Shaping the future joint force, professionally and personally, requires diligent attention. As a reflection of our strategy, we must support educational (including lifelong science, technology, engineering, and math) and other personnel efforts that enable us to recruit, train, exercise, develop, and sustain the unique deterrence, space, and cyber workforce we need.

Indeed, the all-volunteer force is our military's greatest strength, and we must keep the faith with our people and their families. Our Service members, civilians, and their families bear unique sacrifices for our nation, and we especially appreciate their sacrifices over the past decade at war and at home. These sacrifices have come at great cost, and we must continue identifying stresses and providing our troops and their families necessary care. Suicides remain my greatest personnel concern, and I appreciate Service efforts this year to improve the personal resiliency of each member. One suicide is one too many. This is not only every commander's business, but it is the business of every Soldier, Sailor, Airman, Marine, and civilian.

CONCLUSION

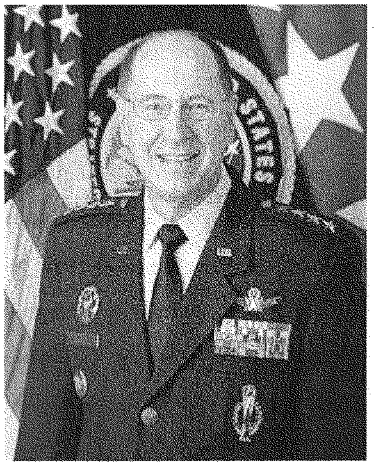
Mister Chairman, it remains a great honor to lead the men and women of U.S. Strategic Command. This is an interesting time for our nation; and this is more than an interesting time for USSTRATCOM. However, the challenge before us is not just to live in interesting times but to continue to excel in these interesting times. Ultimately, our goal is to anticipate and prevent strategic attacks, to continue to assure our allies, and to ensure we maintain access to space and cyberspace, which provide the U.S. decisive strategic and operational advantages to achieve our global security objectives. Our success will hinge on the quality of our people and the effectiveness of our response to a new national security reality that continues to test our agility, flexibility, and resolve. Dealing effectively with these challenges and identifying and pursuing opportunities that result will require all the imagination, innovation, and discipline we can muster. Dealing effectively with these challenges will also require us to synchronize, collaborate, and coordinate with the other combatant commands, agencies, and allies to an unprecedented degree.

These are just the sort of interesting times and challenges USSTRATCOM was designed to address. We are equal to the task and determined to continuously improve and stay ahead of the challenge. I appreciate your continued support for USSTRATCOM and all of our Service members and civilians, and I look forward to continuing to work with you over the coming year.

BIOGRAPHY

UNITED STATES AIR FORCE

GENERAL C. ROBERT "BOB" KEHLER



Gen. C. Robert "Bob" Kehler is Commander, U.S. Strategic Command, Offutt Air Force Base, Neb. He is responsible for the plans and operations for all U.S. forces conducting strategic deterrence and Department of Defense space and cyberspace operations.

General Kehler entered the Air Force in 1975 as a distinguished graduate of the Air Force ROTC program. He has commanded at the squadron, group, wing and major command levels, and has a broad range of operational and command tours in ICBM operations, space launch, space operations, missile warning and space control. He commanded a Minuteman ICBM operations squadron at Whiteman AFB, Mo., and the Air Force's largest ICBM operations group at Malmstrom AFB, Mont. He served as Deputy Director of Operations, Air Force Space Command, and commanded both the 30th Space Wing at Vandenberg AFB, Calif., and the 21st Space Wing at Peterson AFB, Colo. As Deputy Commander, U.S. Strategic Command, he helped provide the President and Secretary of Defense with a broad range of strategic capabilities and options for the joint warfighter through several diverse mission areas, including space operations, integrated missile defense, computer network operations and global strike. General Kehler also commanded Air Force Space Command and America's ICBM force before its transition from Air Force Space Command to Air Force Global Strike Command in December 2009.

The general's staff assignments include wing-level planning and tours with the Air Staff, Strategic Air Commanc headquarters and Air Force Space Command. He was also assigned to the Secretary of the Air Force's Office of Legislative Liaison, where he was the point man on Capitol Hill for matters regarding the President's ICBM Modernization Program. As Director of the National Security Space Office, he integrated the activities of a number of space organizations on behalf of the Under Secretary of the Air Force and Director, National Reconnaissance Office.

EDUCATION

1974 Bachelor of Science degree in education, Pennsylvania State University, State College
1980 Distinguished graduate, Squadron Officer School, Maxwell AFB, Ala.
1982 Air Command and Staff College, by correspondence
1987 Master of Science degree in public administration, University of Oklahoma, Norman
1988 Armed Forces Staff College, Norfolk, Va.
1992 Air War College, by seminar
1995 Naval War College, Newport, R.I.
1995 Master of Arts degree in national security and strategic studies, Naval War College, Newport, R.I.

1998 Program for Executives, Carnegie-Mellon University, Pittsburgh, Pa.
2002 National Security Leadership Course, Maxwell School of Citizenship and Public Affairs, Syracuse University, N.Y.
2006 Program for Senior Executives in National and International Security, John F. Kennedy School of Government, Harvard University, Cambridge, Mass.

ASSIGNMENTS

1. April 1975 - June 1975, student, missile combat crew operational readiness training, Vandenberg AFB, Calif.
2. June 1975 - January 1981, missile combat crew member, instructor, senior evaluator, and Emergency War Order instructor, 341st Strategic Missile Wing, Malmstrom AFB, Mont.
3. January 1981 - April 1982, personnel staff officer, Air Staff Training Program, Headquarters U.S. Air Force, Washington, D.C.
4. April 1982 - January 1985, missile operations staff officer, Headquarters Strategic Air Command, Offutt AFB, Neb.
5. January 1985 - January 1988, resource planner, Directorate of Air Force Operations Plans, and Chief, Strategic Missile Branch, Secretary of the Air Force Office of Legislative Liaison, Headquarters U.S. Air Force, Washington, D.C.
6. January 1988 - June 1988, student, Armed Forces Staff College, Norfolk, Va.
7. July 1988 - July 1991, nuclear employment and policy planner, Nuclear and Chemical Division, Joint Staff, the Pentagon, Washington, D.C.
8. July 1991 - July 1992, Commander, 508th Missile Squadron, Whiteman AFB, Mo.
9. July 1992 - February 1993, Deputy Commander, 351st Operations Group, Whiteman AFB, Mo.
10. February 1993 - August 1994, Commander, 341st Operations Group, Malmstrom AFB, Mont.
11. August 1994 - July 1995, student, Naval War College Newport, R.I.
12. July 1995 - August 1995, Inspector General, Headquarters Air Force Space Command, Peterson AFB, Colo.
13. August 1995 - June 1996, Deputy Director of Operations, Headquarters AFSPC, Peterson AFB, Colo.
14. June 1996 - June 1998, Commander, 30th Space Wing, Vandenberg AFB, Calif.
15. June 1998 - September 1999, Chief, Space Superiority Division, and Chairman, Space Superiority and Nuclear Deterrence Panel, Office of the Deputy Chief of Staff for Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
16. September 1999 - August 2000, special assistant to the Director of Programs, Office of the Deputy Chief of Staff for Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
17. August 2000 - May 2002, Commander, 21st Space Wing, Peterson AFB, Colo.
18. May 2002 - May 2005, Director, National Security Space Integration, Office of the Under Secretary of the Air Force, Washington, D.C.
19. May 2005 - October 2007, Deputy Commander, U.S. Strategic Command, Offutt AFB, Neb.
20. October 2007 - January 2011, Commander, Air Force Space Command, Peterson AFB, Colo.
21 January 2011 - present, Commander, U.S. Strategic Command, Offutt AFB, Neb.

SUMMARY OF JOINT ASSIGNMENTS

1. July 1988 - July 1991, nuclear employment and policy planner, Nuclear and Chemical Division, Joint Staff, the Pentagon, Washington, D.C., as a major and lieutenant colonel
2. May 2005 - October 2007, Deputy Commander, U.S. Strategic Command, Offutt AFB, Neb., as a lieutenant general
3. January 2011 - present, Commander, U.S. Strategic Command, Offutt AFB, Neb., as a general

OPERATIONAL INFORMATION

Weapon systems: Minuteman II and Minuteman III, Defense Support Program
Launch systems: Titan II, Titan IV and Delta II

MAJOR AWARDS AND DECORATIONS

Distinguished Service Medal with oak leaf cluster
Defense Superior Service Medal
Legion of Merit with two oak leaf clusters
Defense Meritorious Service Medal
Meritorious Service Medal with three oak leaf clusters

Air Force Commendation Medal

PUBLICATIONS

"Nuclear Armed Adversaries and the Joint Commander," Naval War College Review, Winter 1996

EFFECTIVE DATES OF PROMOTION

Second Lieutenant April 10, 1975
First Lieutenant April 10, 1977
Captain April 10, 1979
Major May 1, 1985
Lieutenant Colonel June 1, 1989
Colonel Feb. 1, 1994
Brigadier General July 1, 2000
Major General Aug. 1, 2003
Lieutenant General June 1, 2005
General Oct. 12, 2007

(Current as of January 2011)

Statement of Thomas P. D'Agostino
Undersecretary for Nuclear Security and Administrator
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2013 President's Budget Request
Before the
House Armed Services Committee
Subcommittee on Strategic Forces

April 17, 2012

INTRODUCTION

Chairman Turner, Ranking Member Sanchez, and distinguished members of the Subcommittee, good afternoon and thank you for having me here to discuss the President's Fiscal Year 2013 budget request. Your ongoing support for the men and women of NNSA and the work they do, and your bi-partisan leadership on some of the most challenging national security issues of our time, has helped keep the American people safe, helped protect our allies, and enhanced global security.

In February, President Obama released his budget for FY13. As you know, due in part to the constraints established by the Budget Control Act, this is a time to precisely target our investments. I want to assure you that NNSA is being thoughtful, pragmatic, and efficient in how we achieve the President's nuclear security objectives and shape the future of nuclear security.

ACHIEVING THE PRESIDENT'S NUCLEAR SECURITY OBJECTIVES, SHAPING THE FUTURE

In April 2009 in Prague, President Obama shared his vision for a world without nuclear weapons, free from the threat of nuclear terrorism, and united in our approach toward shared nuclear security goals. The President's FY13 request for NNSA is $11.5 billion, an increase of $536 million, or 4.9%, over the FY12 appropriation. The request reaffirms the national commitment to his vision, applying world-class science that addresses our nation's greatest nuclear security challenges and building NNSA's 21st century nuclear security enterprise through key investments in our people and infrastructure, including the revitalization of our existing facilities.

We are doing this in a number of key ways. We are continuing our critical work to maintain the nation's nuclear stockpile, and ensuring that, as long as nuclear weapons exist, the stockpile is safe, secure, and effective. The FY13 budget provides $7.58 billion for our Weapons Activities account, an increase of 5% over the FY12 appropriation, to implement the President's strategy in coordination with our partners at the Department of Defense.

The President continues to support our Life Extension Programs including funding for B61-12 activities in response to the Nuclear Weapons Council's (NWC) anticipated approval and entry into Phase 6.3 Development Engineering. He has also requested increased funding for our Stockpile Systems to support the W78 and W88 life extension study, which I discussed with you last year.

The President's budget also reflects his commitment to completing key dismantlements, with $51.3 million requested in FY13 to continue reducing the number of legacy nuclear weapons retired from the stockpile. NNSA has previously committed to completing the dismantlement of all warheads retired as of FY09 by FY22, and we continue to be on a path to do that. In fact, in FY11, NNSA completed the dismantlement of the last B53 nuclear bomb, one of the largest ever built, ahead of schedule and under budget. We also eliminated the last components of the W70 warhead which was originally in the U.S. Army's arsenal.

Our request for investments in the science, technology, and engineering that support NNSA's missions will ensure that our national security laboratories continue to lead the world in advanced scientific capabilities. $150.6 million is requested for our engineering campaign, which reflects the need for validation-related testing and surety options required for current and future refurbishments; $350.1 million is requested for our science campaign, expanding and refining our experiments and capabilities, which coupled to simulation, improves our confidence in and broadens the national security application of our predictive capabilities; and $460 million is requested for our inertial confinement fusion and high yield campaign, to operate NNSA's suite of world-leading high energy density facilities -- National Ignition Facility (NIF), Omega, and Z -- to support stockpile stewardship in a safe and secure manner.

The Advanced Simulation and Computing campaign's request of $600 million is required for the continued improvement of full system calculations and metric suites that are essential to annual assessments and also to future stockpile changes. Our capabilities directly impact our stockpile by generating incredibly sophisticated models against which we can validate our nuclear weapons codes. Not only has supercomputing helped us solve some existing questions such as energy balance, it also allows us to plan for issues that impact the future health of our deterrent: aging, component lifetimes, and new models for abnormal and hostile environment certification. Supercomputing is critical for LEPs and stockpile modernization: the implementation of various concepts such as reuse and enhanced multipoint safety are only possible with the power of ASC platforms.

For over a decade, NNSA has been building the science, technology, and engineering tools and capabilities needed to take care of the stockpile. We are now entering a time when we will fully utilize these analytical tools and capabilities towards the mission of maintaining a safe, secure, and effective stockpile and performing the necessary life extension work. These capabilities also provide the critical base for nonproliferation and counter-terrorism work, allowing us to apply our investments to the full scope of our mission.

To support our stockpile and to continue producing the world-class capabilities we need to modernize our Cold War-era facilities and maintain the Nation's expertise in uranium processing and plutonium research. This budget includes $2.24 billion to maintain our infrastructure, and execute our construction projects.

The President also requests support for infrastructure improvements necessary to maintain the stockpile well into the future. Major efforts include extending the life of enduring facilities needed for Directed Stockpile Work (DSW) and ST&E program requirements, construction of the Uranium Processing Facility at Y-12, and construction of the TRU Waste Facility at Los Alamos National Laboratory. Funding will also provide for the start of construction of the Electrical Infrastructure Upgrades project at Lawrence Livermore and Los Alamos National Laboratories, and continued construction activities for various projects at Los Alamos and Sandia National Laboratories, the Y-12 National Security Complex, and Pantex. The budget request also includes the resources we need to ensure a comprehensive physical and cyber security posture that provides strong security to support NNSA missions -- protecting our nuclear materials, facilities, and information.

However, our nuclear deterrent is only one part of NNSA's mission. Our nonproliferation programs perform an equally critical function. One of our most important missions has been to support the Administration's commitment to secure the most vulnerable nuclear material across the globe in four years. Our accomplishments in securing plutonium and highly enriched uranium around the world have made it significantly more difficult to acquire and traffic the materials required to make an improvised nuclear device, and I am proud to say that we are on track to meet our goals to remove or dispose of 4,353 kilograms of highly enriched uranium and plutonium in foreign countries, and equip approximately 229 buildings containing weapons-usable material with state-of-the-art security upgrades.

The Defense Nuclear Nonproliferation budget request provides the $2.46 billion to continue these and other critical nonproliferation and nuclear security efforts. Through a multi-layered approach, we will continue to protect and account for material at its source, remove, downblend or eliminate material when possible, detect, deter, and reduce the risk of additional states acquiring nuclear weapons, and support the development of new technologies to detect nuclear trafficking and proliferation, as well as verify arms control treaties.

Our continued focus on innovative and ambitious nonproliferation and nuclear security efforts is vital. The threat is not gone, and the consequences of nuclear terrorism and state proliferation would be devastating. Detonation of a nuclear device anywhere in the world would lead to significant loss of life, and overwhelming economic, political, and psychological consequences. We must remain committed to reducing the risk of nuclear terrorism and state-based proliferation.

The President's FY13 budget request also keeps focus on our commitment to eliminate U.S. excess weapons materials and supports the Mixed Oxide Fuel Fabrication Facility and Waste Solidification Building at the Savannah River Site in South Carolina. The $569.5 million committed to the MOX and related activities this year will lead to the permanent elimination of enough plutonium for at least 8,500 nuclear weapons, which will be matched by similar commitments by the Russian Federation.

In addition, the FY13 budget request gives us the resources we need to maintain our one-of-a-kind emergency response capabilities, which allow us to respond to a nuclear or radiological incidents anywhere in the world. In FY11, we were able to assist the US military, military families, and the Japanese people by deploying our unique emergency response assets in the aftermath of devastating tsunami that affected the Fukushima Daiichi Nuclear Power Plant.

In response to the President's concern regarding the threat of nuclear terrorism, which is also a key goal within the 2010 Nuclear Posture Review, we have established a new organization that is now the focal point for all counterterrorism and counter proliferation activities within NNSA. This organization, the Office of Counterterrorism and Counterproliferation, not only provides unique technical contributions based on NNSA's core nuclear science and technology expertise, but also is designed to coordinate all nuclear counterterrorism, counterproliferation, and post-detonation nuclear forensics related efforts without drastic restructuring.

In addition, NNSA's Naval Reactors program directly supports all aspects of the U.S. Navy's nuclear fleet, which encompasses the Navy's submarines and aircraft carriers, over 40 percent of the U.S. Navy's major combatants. Currently, the nuclear fleet is composed of 54 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. Over 8,300 nuclear-trained Navy personnel safely operate the propulsion plants on these ships all over the world, and their consistent forward presence protects our national interests. Our $1.1 billion FY13 request will support the refueling overhaul for the S8G Land-Based Prototype reactor, the design of the OHIO Replacement reactor plant, and recapitalization of our naval spent nuclear fuel infrastructure.

Each of the projects is critical to fulfillment of the Navy's longer term needs. The S8G Land-Based Prototype Refueling Overhaul reactor plant has served Naval Reactors' needs for research, development, and training since 1978, and the reactor provides a cost-effective testing platform for new technologies and components before they are introduced. To continue vital research capabilities, as well as train sufficient operators to man the Fleet, the S8G Land-Based Prototype Refueling Overhaul must begin in 2018. The OHIO Replacement reactor plant design continues and the FY13 requested amount supports continuing this work to meet the Navy's revised schedule and procurement of reactor plant components in 2019 (to support a 2021 lead-ship procurement). We need to recapitalize its naval spent fuel infrastructure in a cost-effective way that does not impede the refueling of active ships and their return to operations. The existing facility is more than 50 years old, and was never designed for its current primary mission of packaging naval spent nuclear fuel for permanent dry storage.

And finally, $411 million is requested for NNSA's Office of the Administrator account. This funds federal personnel and provides for resources necessary to plan, manage, and oversee the operation of NNSA missions which strengthen U.S. security.

DOING OUR PART

We are committed to being responsible stewards of taxpayer dollars. We have taken steps to ensure that we are building a capabilities-based enterprise focused on needs and solutions. We view this constrained budget environment as an additional incentive to ask ourselves how we can re-think the way we are operating, how we can innovate, and how we can get better.

For example, in close consultation with our national laboratories and national security sites, we are adjusting our plutonium strategy by deferring for at least five years construction of the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF) project at Los Alamos National Laboratory and focusing instead on how we can meet our plutonium needs on an interim basis by using the capabilities and expertise found at existing facilities. Utilizing existing facilities will allow us to meet anticipated near term requirements for plutonium operations while focusing on other key modernization projects. Deferring CMRR-NF will have an estimated cost avoidance from 2013 to 2017 that totals approximately $1.8 billion, which will help offset the costs of other priorities such as Weapons Lifetime Extension programs and other infrastructure needs.

We have eliminated the line item for a Pit Disassembly and Conversion Facility for the MOX program, opting instead for a much less costly approach to producing feedstock by utilizing existing facilities at the Savannah River Site and Los Alamos National Laboratory.

We have also updated our strategy to stop the spread of dangerous nuclear material as we meet the President's four-year lockdown goal. We have developed an innovative approach to scientist engagement tailored for an age when knowledge spreads effortlessly through Google, Facebook, and Twitter.

We are not resting on old ideas to solve tomorrow's problems – we're shaping the future of nuclear security, and we're doing it in a fiscally responsible way. However, I want to stress that as we make adjustments and look toward the future, our plans are based on the FY13 budget request, which give us the resources we need to carry out our mission. Budget uncertainty adds cost and complexity to how we achieve our goals. You have been supportive of our efforts in the past, I ask again for your help in providing the stability we need to do our jobs efficiently and effectively.

CONTINUOUSLY IMPROVING

I would like to acknowledge that I have come before you in the past and talked at length about how NNSA has been working to change the way we do business. I am proud of the work the men and women of our NNSA have done to come together and operate as one. We are defining ourselves as a fully integrated enterprise that operates efficiently, is organized to succeed, that performs our work seamlessly, and speaks with one voice.

We are improving everywhere, from our governance model to our network infrastructure, from our contracting processes to leadership and development programs. We are improving business processes by implementing the ISO 9001 standard, looking toward the future through a workforce analysis, and improving efficiency through consolidated contracts.

We are continuously improving so we are able to do the work the American people need us to do, in a time when everyone is looking to do more with less. We are positioning ourselves for the next decade by making big decisions focused on the future.

For example, after more than two years of analysis and outside reviews, we released an RFP for the combined management of the Y-12 National Security Complex and Pantex Plant, with an option for phase-in of Tritium Operations performed at the Savannah River Site. Combining contracts and site offices will allow us to improve performance, reduce the cost of work, and operate as an integrated enterprise. We also decided to compete the contract for management and operation of Sandia National Laboratories, a move designed to find meaningful improvement in performance and reduce cost for taxpayers.

We have taken other significant steps to continue improving, from top-to-bottom. We created an Acquisition and Project Management organization to help institutionalize our commitment to improving the way we do business. This move will improve the quality of our work while keeping our projects on time and on budget.

We awarded a Blanket Purchasing Agreement for Enterprise Construction Management Services. The BPA will standardize our approach to project management across the enterprise and provide subject matter experts to provide independent analysis and advice related to the design and construction of facilities.

And, importantly, we have institutionalized a culture of safety. Through a unique series of Biennial Reviews, including reviews at Headquarters, we have improved nuclear safety across our Nuclear Security Enterprise. We have provided objective, value-added information to managers that ensure our nuclear safety oversight is consistent and effective. Since the reviews began in 2005, we have seen continuous improvement at every site.

We are also improving the way we work with our partners across the Department of Energy. In my role as Undersecretary of Energy for Nuclear Security, I have made better coordination with DOE's Office of Environmental Management and Office of Legacy Management key priorities.

For example, by partnering with the Office of Environmental Management, we have been able to share investments in our current infrastructure at the Savannah River Site. Using H-Canyon to eliminate surplus weapons-grade plutonium is a cost-effective approach for producing plutonium oxide for the MOX Facility that utilizes current resources and capabilities, and saves jobs. We are also taking care to make good use of past investments. For example, 40 grams of curium worth $8.8 million that was no longer needed for stockpile stewardship was transferred from the Los Alamos National Laboratory to the Idaho and Oak Ridge National Laboratories for use in energy R&D and for production of new isotopes.

We are also working with the Office of Legacy Management to benchmark long-term surveillance and maintenance costs. Large closed sites with on-going groundwater issues, such as Fernald, Rocky Flats, Weldon Spring, Tuba City, and Mound, may have post-closure requirements similar to some of the Savannah River facilities, so we are learning from each other by comparing scope and cost to refine our estimates.

CONCLUSION

Our mission is vital, and your past support has been key in helping us accomplish it. The FY13 budget reflects our commitment to keeping the American people safe while continuously improving and doing our part in a time of fiscal austerity. We are looking toward the future and building an organization that is aligned to succeed. I look forward to working with each of you to help us do that. Thank you.

National Nuclear Security Administration

Appropriation and Program Summary Tables
Outyear Appropriation Summary Tables

FY 2013 BUDGET TABLES

National Nuclear Security Administration

Overview

Appropriation Summary [a] [b]

	(dollars in thousands)						
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Office of the Administrator							
Program Direction	398,993	410,000	411,279	418,742	426,599	434,848	444,276
Rescission of Prior Year Balances	-5,700	0	0	0	0	0	0
Total, Office of the Administrator	393,293	410,000	411,279	418,742	426,599	434,848	444,276
Weapons Activities Appropriation							
Defense Programs							
Directed Stockpile Work	1,905,078	1,873,694	2,088,274				
Science Campaign	366,167	332,958	350,104				
Engineering Campaign	142,010	142,636	150,571				
Inertial Confinement Fusion Ignition and High Yield Campaign	478,105	474,812	460,000				
Advanced Simulation and Computing Campaign	613,620	618,076	600,000				
Readiness Campaign	91,695	128,406	130,095				
Readiness in Technical Base and Facilities	1,842,519	2,004,785	2,239,828				
Secure Transportation Asset	251,806	242,802	219,361				
Total, Defense Programs	5,691,000	5,818,169	6,238,233				
Nuclear Counterterrorism Incident Response	232,503	220,969	247,552				
Facilities and Infrastructure Recapitalization Program	93,574	96,120	0				
Site Stewardship	104,727	78,581	90,001				
Safeguards and Security							
Defense Nuclear Security	717,722	695,679	0				
Cyber Security	124,231	126,370	0				
Subtotal, Safeguards and Security	841,953	822,049	0				
Defense Nuclear Security	0	0	643,285				
NNSA CIO Activities	0	0	155,022				
Science, Technology and Engineering Capability	19,794	0	0				
National Security Applications	0	10,000	18,248				
Legacy Contractor Pensions	0	168,232	185,000				
Use of Prior Year Balances	-67,776	0	0				
Rescission of Prior Year Balances	-50,000	0	0				
Total, Weapons Activities	6,865,775	7,214,120	7,577,341	7,613,033	7,755,866	7,905,841	8,077,242
Defense Nuclear Nonproliferation							
Nonproliferation and Verification Research and Development	355,407	354,150	548,186	412,622	420,344	428,417	437,719
Nonproliferation and International Security	147,494	153,594	150,119	156,363	167,070	173,718	177,490
International Nuclear Materials Protection and Cooperation	578,633	569,927	311,000	282,628	288,026	293,870	300,171
Fissile Materials Disposition	802,198	685,386	921,305	950,000	960,000	975,000	996,170
Global Threat Reduction Initiative	444,689	498,000	466,021	485,775	494,866	504,371	515,322
Legacy Contractor Pensions	0	55,823	62,000	63,138	64,320	65,555	66,978
Use of Prior Year Balances	-2,050	0	0	0	0	0	0
Rescission of Prior Year Balances	-45,000	-21,000	0	0	0	0	0
Total, Defense Nuclear Nonproliferation	2,281,371	2,295,880	2,458,631	2,350,526	2,394,626	2,440,931	2,493,850
Naval Reactors							
Naval Reactors	986,526	1,080,000	1,088,635	1,108,391	1,129,186	1,151,021	1,175,975
Rescission of Prior Year Balances	-1,000	0	0	0	0	0	0
Total, Naval Reactors	985,526	1,080,000	1,088,635	1,108,391	1,129,186	1,151,021	1,175,975
Total, NNSA	10,525,965	11,000,000	11,535,886	11,490,692	11,706,277	11,932,641	12,191,343

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[a] The annual totals include an allocation to NNSA from the Department of Defense. The amounts included are $677,076 in FY 2014; $712,344 in FY 2015; $766,924 in FY 2016; and $781,204 in FY 2017.

[b] FY 2012 Enacted reflects a rescission of $27,300 associated with savings from the contractor pay freeze. Of the $27,300, $19,877 was rescinded from Weapons Activities and $7,423 was rescinded from Defense Nuclear Nonproliferation.

NNSA Future-Years Nuclear Security Program[3]

(Dollars in Thousands)

	FY 2013 Request	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
NNSA					
Office of the Administrator	411,279	418,742	426,599	434,848	444,276
Weapons Activities	7,577,341	7,613,033	7,755,866	7,905,841	8,077,242
Defense Nuclear Nonproliferation	2,458,631	2,350,526	2,394,626	2,440,931	2,493,850
Naval Reactors	1,088,635	1,108,391	1,129,186	1,151,021	1,175,975
Total, NNSA	**11,535,886**	**11,490,692**	**11,706,277**	**11,932,641**	**12,191,343**

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[3] The annual totals include an allocation to NNSA from the Department of Defense. The amounts included are $677,076 in FY 2014; $712,344 in FY 2015; $766,924 in FY 2016; and $781,204 in FY 2017.

Office of the Administrator

Overview
Appropriation Summary by Program

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Office of the Administrator			
NNSA Program Direction			
Salaries and Benefits	282,967	301,995	304,474
Travel	16,536	15,500	15,500
Support Services	22,445	20,500	20,500
Other Related Expenses	77,045	72,005	70,805
Subtotal, Office of the Administrator	**398,993**	**410,000**	**411,279**
Rescission of Prior Year Balances	-5,700	0	0
Total, Office of the Administrator	**393,293**	**410,000**	**411,279**

Outyear Appropriation Summary by Program

(Dollars in Thousands)

	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Office of the Administrator				
NNSA Program Direction				
Salaries and Benefits	311,937	319,794	328,043	337,471
Travel	15,500	15,500	15,500	15,500
Support Services	20,500	20,500	20,500	20,500
Other Related Expenses	70,805	70,805	70,805	70,805
Total, Office of the Administrator	**418,742**	**426,599**	**434,848**	**444,276**

Weapons Activities

Overview

Appropriation Summary by Program

(dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [a]	FY 2013 Request
Weapons Activities			
Directed Stockpile Work	1,905,078	1,873,694	2,088,274
Science Campaign	366,167	332,958	350,104
Engineering Campaign	142,010	142,636	150,571
Inertial Confinement Fusion Ignition and High Yield Campaign	478,105	474,812	460,000
Advanced Simulation and Computing Campaign	613,620	618,076	600,000
Readiness Campaign	91,695	128,406	130,095
Readiness in Technical Base and Facilities	1,842,519	2,004,785	2,239,828
Secure Transportation Asset	251,806	242,802	219,361
Nuclear Counterterrorism Incident Response	232,503	220,969	247,552
Facilities and Infrastructure Recapitalization Program	93,574	96,120	0
Site Stewardship	104,727	78,581	90,001
Defense Nuclear Security	717,722	695,679	643,285
Cyber Security	124,231	126,370	0
NNSA CIO Activities	0	0	155,022
Science, Technology and Engineering Capability	19,794	0	0
National Security Applications	0	10,000	18,248
Legacy Contractor Pensions	0	168,232	185,000
Subtotal Weapons Activities	**6,983,551**	**7,214,120**	**7,577,341**
Use of Prior Year Balances	-67,776	0	0
Rescission of Prior Year Balances	-50,000	0	0
Total, Weapons Activities	**6,865,775**	**7,214,120**	**7,577,341**

Out-Year Appropriation Summary by Program

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Directed Stockpile Work

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Directed Stockpile Work			
Life Extension Programs	248,357	479,098	543,931
Stockpile Systems	651,333	486,123	590,409
Weapons Dismantlement and Disposition	57,968	56,591	51,265
Stockpile Services	947,420	851,882	902,669
Total, Directed Stockpile Work	**1,905,078**	**1,873,694**	**2,088,274**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Science Campaign

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Total, Science Campaign	**366,167**	**332,958**	**350,104**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Engineering Campaign

Funding Profile by Subprogram and Activity

	(dollars in thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Total, Engineering Campaign	**142,010**	**142,636**	**150,571**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Inertial Confinement Fusion Ignition and High Yield Campaign

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Total, Inertial Confinement Fusion and High Yield Campaign	**478,105**	**474,812**	**460,000**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Advanced Simulation and Computing Campaign

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Total, Advanced Simulation and Computing Campaign	**613,620**	**618,076**	**600,000**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Readiness Campaign

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Total, Readiness Campaign	**91,695**	**128,406**	**130,095**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Readiness in Technical Base and Facilities

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Readiness in Technical Base and Facilities			
Operations of Facilities	1,255,307	1,281,847	1,419,403
Program Readiness	69,736	73,962	0
Material Recycle and Recovery	77,493	77,780	0
Containers	27,820	28,892	0
Storage	23,945	31,196	0
Nuclear Operations Capability Support	0	0	203,346
Science Technology and Engineering Support	0	0	166,945
Subtotal, Operations and Maintenance	**1,454,301**	**1,493,677**	**1,789,694**
Construction	388,218	511,108	450,134
Total, Readiness in Technical Base and Facilities	**1,842,519**	**2,004,785**	**2,239,828**

Out-Year Funding Schedule by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Secure Transportation Asset

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Secure Transportation Asset (STA)			
Operations and Equipment	156,877	144,800	114,965
Program Direction	94,929	98,002	104,396
Total, Secure Transportation Asset	**251,806**	**242,802**	**219,361**

Secure Transportation Asset - Operations and Equipment

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Operations and Equipment			
Mission Capacity	83,718	84,376	56,458
Security Safety Capability	34,670	19,986	22,457
Infrastructure and C5 Systems	28,867	29,449	24,199
Program Management	9,622	10,989	11,851
Total, Operations and Equipment	**156,877**	**144,800**	**114,965**

Secure Transportation Asset - Program Direction

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Program Direction			
Salaries and Benefits	79,644	82,613	84,878
Travel	8,334	7,758	7,216
Other Related Expenses	6,951	7,631	12,302
Total, Program Direction	**94,929**	**98,002**	**104,396**
Total Full Time Equivalents	**637**	**622**	**639**

Out Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Nuclear Counterterrorism Incident Response

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Nuclear Counterterrorism Incident Response (Homeland Security) [a]			
Emergency Response (Homeland Security) [a]	135,429	136,185	150,043
National Technical Nuclear Forensics (Homeland Security) [a]	11,446	11,589	11,694
Emergency Management (Homeland Security) [a]	7,494	7,153	6,629
Operations Support (Homeland Security) [a]	8,488	8,691	8,799
International Emergency Management and Cooperation	6,986	7,129	7,139
Nuclear Counterterrorism (Homeland Security) [a]	62,660	50,222	63,248
Total, Nuclear Counterterrorism Incident Response	**232,503**	**220,969**	**247,552**

Out-Year Target Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

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[a] Office of Management and Budget (OMB) Homeland Security designation.

Facilities and Infrastructure Recapitalization Program

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Facilities and Infrastructure Recapitalization Program			
Operations and Maintenance (O&M)			
Recapitalization	77,160	81,720	0
Infrastructure Planning	6,494	9,400	0
Facility Disposition	9,920	5,000	0
Total, O&M Facilities and Infrastructure Recapitalization Program	**93,574**	**96,120**	**0**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Site Stewardship

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Site Stewardship			
Operations and Maintenance			
Environmental Projects and Operations	41,970	45,191	46,978
Energy Modernization and Investment Program	6,618	0	10,262
Nuclear Materials Integration	41,169	33,390	18,963
Corporate Project Management	0	0	13,798
Total, Operations and Maintenance	**89,757**	**78,581**	**90,001**
Construction	**14,970**	**0**	**0**
Total, Site Stewardship	**104,727**	**78,581**	**90,001**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Defense Nuclear Security

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Defense Nuclear Security			
Operations and Maintenance (Homeland Security)			
Protective Forces	414,166	418,758	341,676
Physical Security Systems	73,794	82,783	98,267
Information Security	25,943	30,117	34,237
Personnel Security	30,913	37,285	37,781
Materials Control and Accountability	35,602	34,592	34,484
Program Management	78,183	75,595	96,840
Technology Deployment, Physical Security	7,225	4,797	0
Total, Operations and Maintenance (Homeland Security)	**665,826**	**683,927**	**643,285**
Construction (Homeland Security)	51,896	11,752	0
Total, Defense Nuclear Security	**717,722**	**695,679**	**643,285**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Cyber Security

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Cyber Security (Homeland Security)			
Infrastructure Program	97,735	107,374	0
Enterprise Secure Computing	21,500	14,000	0
Technology Application Development	4,996	4,996	0
Total, Cyber Security	**124,231**	**126,370**	**0**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

NNSA CIO Activities

Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
NNSA CIO Activities			
Cyber Security (Homeland Security)			
Infrastructure Program	0	0	111,022
Technology Application Development [a]	0	0	0
Enterprise Secure Computing (Homeland Security)	0	0	14,000
Federal Unclassified Information Technology	0	0	30,000
Total, NNSA CIO Activities	**0**	**0**	**155,022**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

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[5] In FY 2011 and FY 2012 Technology Application Development is reflected in the Cyber Security program. In FY 2013 funds supporting Technology Application Development were realigned to infrastructure for higher priority requirements. Technology Application initiatives are to be supported in the outyears.

National Security Applications

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Total, National Security Applications	**0**	**10,000**	**18,248**
Total, Science, Technology and Engineering Capability	**19,794**	**0**	**0**

Out-Year Funding Profile by Subprogram and Activity

The outyear numbers for Weapons Activities do not reflect programmatic requirements. Rather, they are an extrapolation of the FY 2013 request based on rates of inflation in the Budget Control Act of 2011. The Administration will develop outyear funding levels based on actual programmatic requirements at a later date.

Defense Nuclear Nonproliferation

Overview
Appropriation Summary by Program

	(dollars in thousands)		
	FY 2011 Current	FY 2012 Enacted [a]	FY 2013 Request
Defense Nuclear Nonproliferation			
Nonproliferation and Verification Research and Development	355,407	354,150	548,186
SBIR/STTR [Non-Add]	[5,579]	[6,245]	[11,727]
Nonproliferation and International Security	147,494	153,594	150,119
International Nuclear Materials Protection and Cooperation [b]	578,633	569,927	311,000
Fissile Materials Disposition	802,198	685,386	921,305
Global Threat Reduction Initiative [b]	444,689	498,000	466,021
Legacy Contractor Pensions	0	55,823	62,000
Subtotal of Defense Nuclear Nonproliferation	**2,328,421**	**2,316,880**	**2,458,631**
Use of Prior Year Balances	-2,050	0	0
Rescission of Prior Year Balances	-45,000	-21,000	0
Total, Defense Nuclear Nonproliferation	**2,281,371**	**2,295,880**	**2,458,631**

Out-Year Appropriation Summary by Program

	(dollars in thousands)			
	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Defense Nuclear Nonproliferation				
Nonproliferation and Verification Research and Development	412,622	420,344	428,417	437,719
Nonproliferation and International Security	156,363	167,070	173,718	177,490
International Nuclear Materials Protection and Cooperation [b]	282,628	288,026	293,870	300,171
Fissile Materials Disposition	950,000	960,000	975,000	996,170
Global Threat Reduction Initiative [b]	485,775	494,866	504,371	515,322
Legacy Contractor Pensions	63,138	64,320	65,555	66,978
Total, Defense Nuclear Nonproliferation	**2,350,526**	**2,394,626**	**2,440,931**	**2,493,850**

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[6] FY 2012 Enacted reflects rescission of $7.4 million associated with savings from the contractor pay freeze.

[7] FY 2011 total includes international contributions for INMP&C of $300,000 from South Korea, $117,000 from the United Kingdom of Great Britain, $512,076 from Norway, $540,602 from New Zealand, and $5,169,026 from Canada. International contributions for GTRI include $8,207,791 from Canada, and $499,970 from the Netherlands.

Nonproliferation and Verification Research and Development

Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Nonproliferation and Verification Research and Development			
Proliferation Detection (PD)	229,427	222,150	240,536
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection (NDD)	125,980	132,000	157,650
Domestic Uranium Enrichment RD&D	0	0	150,000
SBIR/STTR [a] [Non-Add]	0	[6,245]	[11,727]
Total, Nonproliferation and Verification R&D	**355,407**	**354,150**	**548,186**

Out-Year Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Nonproliferation and Verification Research and Development				
Proliferation Detection (PD)	248,312	252,955	257,790	263,369
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection (NDD)	164,310	167,389	170,627	174,350
Domestic Uranium Enrichment RD&D	0	0	0	0
SBIR/STTR [Non-Add]	[8,446]	[8,941]	[9,598]	[10,461]
Total, Nonproliferation and Verification R&D	**412,622**	**420,344**	**428,417**	**437,719**

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[a] FY 2011 current appropriation reflects the $5,579 thousand transferred out of the DNN appropriation for SBIR/STTR.

Nonproliferation and International Security Funding Profile by Subprogram and Activity[9]

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Nonproliferation and International Security			
Dismantlement and Transparency	49,207	0	0
Global Security Engagement and Cooperation	47,289	0	0
International Regimes and Agreements	39,824	0	0
Treaties and Agreements	11,174	0	0
Nuclear Safeguards and Security	0	54,897	54,723
Nuclear Controls	0	47,444	45,420
Nuclear Verification	0	39,969	40,566
Nonproliferation Policy	0	11,284	9,410
Total, Nonproliferaiton and International Security	**147,494**	**153,594**	**150,119**

Out-Year Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Nonproliferation and International Security				
Dismantlement and Transparency	0	0	0	0
Global Security Engagement and Cooperation	0	0	0	0
International Regimes and Agreements	0	0	0	0
Treaties and Agreements	0	0	0	0
Nuclear Safeguards and Security	56,999	60,902	63,326	64,701
Nuclear Controls	47,309	50,549	52,560	53,701
Nuclear Verification	42,253	45,147	46,943	47,962
Nonproliferation Policy	9,802	10,472	10,889	11,126
Total, Nonproliferaiton and International Security	**156,363**	**167,070**	**173,718**	**177,490**

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[9] The Nonproliferation and International Security Program implemented a budget structure change starting in FY 2012. The structure change created a more efficient and clearer program organization with activities aligned along functional lines that reflect U.S. nonproliferation priorities and initiatives. The new structure depicts more clearly the alignment of people,
technology, and resources to meet and implement nuclear nonproliferation objectives.

International Nuclear Materials Protection and Cooperation Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
International Nuclear Materials Protection and Cooperation			
Navy Complex	34,332	33,664	39,860
Strategic Rocket Forces/12th Main Directorate	51,359	59,105	8,300
Weapons Material Protection [a]	93,318	80,735	46,975
Civilian Nuclear Sites	53,027	59,117	60,092
Material Consolidation and Conversion	13,867	14,306	17,000
National Infrastructure and Sustainability Program [b]	60,928	60,928	46,199
Second Line of Defense	265,163	262,072	92,574
International Contributions [c]	6,639	0	0
Total, International Nuclear Materials Protection and Cooperation	**578,633**	**569,927**	**311,000**

Out-Year Funding Profile by Subprogram and Activity

	(Dollars in Thousands)			
	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
International Nuclear Materials Protection and Cooperation				
Navy Complex	39,742	39,767	39,843	39,823
Strategic Rocket Forces/12th Main Directorate	14,300	14,300	14,300	14,300
Weapons Material Protection [a]	54,857	54,882	54,958	54,938
Civilian Nuclear Sites	59,972	59,997	60,074	60,053
Material Consolidation and Conversion	20,000	20,000	20,000	20,000
National Infrastructure and Sustainability Program [b]	46,081	46,106	46,182	46,162
Second Line of Defense	47,676	52,974	58,513	64,895
Total, International Nuclear Materials Protection and Cooperation	**282,628**	**288,026**	**293,870**	**300,171**

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[a] Weapons Material Protection was formerly known as Rosatom Weapons Complex.

[b] National Infrastructure and Sustainability was formerly known as National Programs and Sustainability.

[c] FY 2011 total includes international contributions of $300,000 from South Korea, $117,000 from the United Kingdom of Great Britain, $512,076 from Norway, $540,602 from New Zealand, and $5,169,026 from Canada.

Fissile Materials Disposition
Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Fissile Materials Disposition			
U.S. Surplus Fissile Materials Disposition			
Operations and Maintenance (O&M)			
U.S. Plutonium Disposition	200,400	205,632	498,979
U.S. Uranium Disposition	25,985	26,000	29,736
Subtotal, O&M	**226,385**	**231,632**	**528,715**
Construction	575,788	452,754	388,802
Total, U.S. Surplus Fissile Materials Disposition	**802,173**	**684,386**	**917,517**
Russian Surplus Fissile Materials Disposition			
Russian Materials Disposition	25	1,000	3,788
Total, Fissile Materials Disposition	**802,198**	**685,386**	**921,305**

Out-Year Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Fissile Materials Disposition				
U.S. Surplus Fissile Materials Disposition				
Operations and Maintenance (O&M)				
U.S. Plutonium Disposition	793,506	908,906	930,967	957,881
U.S. Uranium Disposition	30,058	33,546	33,453	30,514
Subtotal, O&M	**823,564**	**942,452**	**964,420**	**988,395**
Construction	118,661	9,773	2,805	0
Total, U.S. Surplus Fissile Materials Disposition	**942,225**	**952,225**	**967,225**	**988,395**
Russian Surplus Fissile Materials Disposition				
Russian Materials Disposition	7,775	7,775	7,775	7,775
Total, Fissile Materials Disposition	**950,000**	**960,000**	**975,000**	**996,170**

Global Threat Reduction Initiative (GTRI)
Funding Profile by Subprogram and Activity

	(Dollars in Thousands)		
	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Global Threat Reduction Initiative			
Highly Enriched Uranium (HEU) Reactor Conversion	**100,968**	**148,269**	**161,000**
Nuclear and Radiological Material Removal			
Russian-Origin Nuclear Material Removal	159,031	147,000	102,000
U.S.-Origin Nuclear Material Removal	4,420	9,000	5,000
Gap Nuclear Material Removal	9,289	45,731	61,000
Emerging Threats Nuclear Material Removal	8,768	5,000	5,000
International Radiological Material Removal	20,660	20,000	8,000
Domestic Radiological Material Removal (Homeland Security) [a]	19,128	20,000	19,000
Subtotal, Nuclear and Radiological Material Removal	**221,296**	**246,731**	**200,000**
Nuclear and Radiological Material Protection			
BN-350 Nuclear Material Protection	1,840	2,000	0
International Material Protection	46,573	50,000	50,000
Domestic Material Protection (Homeland Security) [a]	65,304	51,000	55,021
Subtotal, Nuclear and Radiological Material Protection	**113,717**	**103,000**	**105,021**
International Contributions [b]	**8,708**	**0**	**0**
Total, Global Threat Reduction Initiative	**444,689**	**498,000**	**466,021**

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[11] Office of Management and Budget (OMB) Homeland Security designation.

[b] International contributions for GTRI include $8,207,791 from Canada, and $499,970 from the Netherlands.

Out-Year Funding Profile by Subprogram and Activity

	(Dollars in Thousands)			
	FY 2014 Request	FY 2015 Request	FY 2016 Request	FY 2017 Request
Global Threat Reduction Initiative				
Highly Enriched Uranium (HEU) Reactor Conversion	**177,000**	**183,000**	**185,000**	**195,000**
Nuclear and Radiological Material Removal				
Russian-Origin Nuclear Material Removal	100,000	100,000	100,000	95,000
U.S.-Origin Nuclear Material Removal	5,000	5,000	6,000	8,000
Gap Nuclear Material Removal	45,000	30,000	20,000	15,000
Emerging Threats Nuclear Material Removal	5,000	5,000	5,000	5,000
International Radiological Material Removal	20,000	20,000	20,000	20,000
Domestic Radiological Material Removal (Homeland Security) [a]	20,000	20,000	20,000	20,000
Subtotal, Nuclear and Radiological Material Removal	**195,000**	**180,000**	**171,000**	**163,000**
Nuclear and Radiological Material Protection				
BN-350 Nuclear Material Protection	0	0	0	0
International Material Protection	52,000	60,000	68,000	73,000
Domestic Material Protection (Homeland Security) [a]	61,775	71,866	80,371	84,322
Subtotal, Nuclear and Radiological Material Protection	**113,775**	**131,866**	**148,371**	**157,322**
Total, Global Threat Reduction Initiative	**485,775**	**494,866**	**504,371**	**515,322**

Naval Reactors
Overview
Appropriation Summary by Program

(dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [a]	FY 2013 Request [b]
Naval Reactors			
Naval Reactors Operations and Maintenance (O&M)	914,071	0	0
Naval Reactors Operations and Infrastructure	0	358,300	366,961
Naval Reactors Development	0	421,000	418,072
S8G Protype Refueling	0	99,500	121,100
OHIO Replacement Reactor Systems Development	0	121,300	89,700
Total, Naval Reactors O&M	914,071	1,000,100	995,833
Program Direction	39,920	40,000	43,212
Construction	32,535	39,900	49,590
Subtotal, Naval Reactors	**986,526**	**1,080,000**	**1,088,635**
Rescission of Prior Year Balances	-1,000	0	0
Total, Naval Reactors	**985,526**	**1,080,000**	**1,088,635**

Out-Year Appropriation Summary by Program

(dollars in thousands)

	FY 2014 Projection[b]	FY 2015 Projection[b]	FY 2016 Projection	FY 2017 Projection
Naval Reactors				
Naval Reactors Operations and Infrastructure	384,365	377,814	383,719	396,283
Naval Reactors Development	434,306	426,245	432,449	446,609
S8G Prototype Refueling[c]	123,327	125,522	127,760	130,054
OHIO Replacement Reactor Systems Development[c]	91,350	92,975	94,634	96,333
Program Direction	49,670	52,400	54,159	56,096
Construction	25,373	54,230	58,300	50,600
Total, Naval Reactors	**1,108,391**	**1,129,186**	**1,151,021**	**1,175,975**

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[a] The Conference Report of H.R. 2055 Military Construction and Veterans Affairs, and Related Agencies Appropriations Act, 2012 establishing new funding controls for Naval Reactors: Naval Reactors Operations and Infrastructure, Naval Reactors Development, S8G Prototype Refueling, and OHIO Replacement Reactor Systems Development.

[b] FY 2013, FY 2014 and FY 2015 includes an allocation to Naval Reactors from the Department of Defense's (DoD) Research, Development, Testing and Evaluation (RDT&E) account entitled "NNSA PROGRAM SUPPORT". The amounts included for Naval Reactors from this DoD account are FY 2013 $5.8 million; FY 2014, $2.0 million; and FY 2015, $0.9 million.

[c] Due to the Budget Control Act of 2011 the outyear funding for S8G Prototype Refueling and OHIO Replacement Reactor Systems Development is under review and will be updated at a later date.

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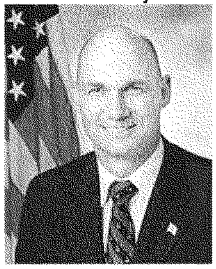
Thomas P. D'Agostino

Under Secretary for Nuclear Security & Administrator, National Nuclear Security Administration



Mr. Thomas Paul D'Agostino was sworn in on August 30, 2007, as the Under Secretary for Nuclear Security and Administrator of the National Nuclear Security Administration (NNSA). On September 3, 2009, President Obama announced that Mr. D'Agostino was his choice to continue serving as the Under Secretary for Nuclear Security and NNSA Administrator.

The NNSA plays a critical role in ensuring the security of our Nation by maintaining the safety, security, and effectiveness of the U.S. nuclear weapons stockpile without nuclear testing; reducing the global danger from the proliferation of nuclear weapons and materials; providing the U.S. Navy with safe and effective nuclear propulsion; and providing the Nation with an effective nuclear counterterrorism and incident response capability.

From February 2006 to August 2007, Mr. D'Agostino served as the Deputy Administrator for Defense Programs and directed the Stockpile Stewardship Program and major elements of the NNSA's Nuclear Security Enterprise. The Nuclear Security Enterprise includes three national research laboratories, four production plants, and the Nevada National Security Site. The Stockpile Stewardship Program employs more than 25,000 people around the country and encompasses operations associated with manufacturing, maintaining, refurbishing, and dismantling the nuclear weapons stockpile. Prior to his appointments to the above Presidentially-appointed Senate confirmed positions, Mr. D'Agostino was the Assistant Deputy Administrator for Program Integration where he supported the Deputy Administrator and directed the formulation of the programs, plans, and budget for the Stockpile Stewardship Program. He had also served as the Deputy Director for the Nuclear Weapons Research, Development, and Simulation Program where he directed the formulation of the programs and budget for the research and development program that supports the Stockpile Stewardship

Program. Mr. D'Agostino also worked in numerous assignments within the Federal Government including the start-up of the Department's tritium production reactors and at the Naval Sea Systems Command as a program manager for the SEAWOLF submarine propulsion system.

Mr. D'Agostino achieved the rank of Captain in the U.S. Naval Reserves where he served with the Navy Inspector General and with the Deputy Chief of Naval Operations for Submarine Warfare in developing concepts for new attack submarine propulsion systems. He also served with the Deputy Chief of Naval Operations for Plans, Policy, and Operations (N3/5) in the Navy Command Center in the Pentagon. In this capacity, he was the French Desk Officer for the Chief of Naval Operations responsible for all Politico-Military interactions with the French Navy and served as the Duty Captain at the Navy Command Center.

He spent more than eight years on active duty in the Navy as a submarine officer, including assignments onboard the USS SKIPJACK (SSN 585) and with the Board of Inspection and Survey where he was the Main Propulsion and Nuclear Reactor Inspector. In this position, he performed nuclear reactor and propulsion engineering inspections for more than 65 submarines and nuclear-powered ships in the Atlantic and Pacific Fleets.

Mr. D'Agostino's awards include: Presidential Rank Meritorious Executive Award; Navy Commendation Medal with Gold Stars; Navy Achievement Medal; Navy Expeditionary Medal; Meritorious Unit Commendation; and, National Defense Service Medal.

Mr. D'Agostino is married to Beth Ann Alemany of Manchester, CT, and has two children.

Education: Naval War College, Newport, RI, MS National Security Studies, 1997 (Distinguished Graduate)Johns Hopkins University, Baltimore, MD, MS Business Finance, 1992United States Naval Academy, Annapolis, MD, BS Physical Science, 1980.

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Statement of
David Huizenga
Senior Advisor for Environmental Management
United States Department of Energy

Before the
Subcommittee on Strategic Forces
Committee on Armed Services
United States House of Representatives

April 17, 2012

Good afternoon, Mr. Chairman, Ranking Member Sanchez, and Members of the Subcommittee. I am pleased to be here today to answer your questions on the President's fiscal year (FY) 2013 budget request for the Department of Energy's (DOE) Office of Environmental Management (EM). The EM FY 2013 budget request of $5.65 billion enables EM to continue the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research.

Environmental Management Program Strategies: A National Responsibility

The DOE Strategic Plan highlights EM's objective to complete the environmental remediation of our legacy and active sites by disposing of radioactive wastes, remediating contaminated soil and groundwater, and deactivating and decommissioning (D&D) radioactively contaminated facilities. EM is committed to sound technology development and deployment. EM develops and implements first-of-a-kind technologies to further enhance its ability and efficiency in cleaning up radioactive waste. Through these innovations, EM and the companies that perform its cleanup work have remained world leaders in this arena. Our work in EM enables other crucial DOE missions to continue across the United States. By reducing our cleanup footprint, EM is lowering the cost of security, surveillance, infrastructure, and overhead costs that would otherwise continue for years to come.

Overview of Program Priorities

To best address our cleanup objectives, EM's cleanup prioritization is based on achieving the greatest risk reduction benefit per radioactive content (wastes that contain the highest concentrations of radionuclides) while continuing to meet regulatory compliance commitments and promote best business practices. EM's priorities to support this approach include:

- Radioactive tank waste stabilization, treatment, and disposal;
- Spent (used) nuclear fuel storage, receipt, and disposition;
- Special nuclear materials consolidation, processing, and disposition;

- Transuranic waste and mixed low-level/low-level waste disposition;
- Soil and groundwater remediation; and
- Excess facilities D&D.

Creating Synergies that Last

In an effort to maximize the accomplishments of mission-critical projects and organize needs more closely with DOE's resources, EM was aligned under the Office of the Under Secretary for Nuclear Security in August 2011. This alignment allows DOE to capitalize on the expertise that exists among the National Nuclear Security Administration (NNSA), EM, the Office of Legacy Management, and the DOE Chief Nuclear Safety Officer on areas related to project management, nuclear materials and waste handling, and nuclear safety and security.

There are natural synergies between EM and NNSA. At Savannah River Site, EM and NNSA are working closely together to utilize the H-Canyon facility and support multiple missions including: converting about 3.7 metric tons of plutonium into suitable feed for NNSA's Mixed Oxide Fuel (MOX) Fabrication Facility; removing contaminants in the plutonium to make it amenable for use as MOX feed; and reducing the amount of plutonium that EM needs to package and send to the Waste Isolation Pilot Plant for disposal. These activities will occur in addition to EM's utilization of H-Canyon for activities such as the commencement of the process for the disposition of spent (used) nuclear fuel that is not suitable for extended storage in L-Basin.

At Oak Ridge National Laboratory, EM and NNSA are working together to accelerate the transfer of certain components of the Uranium-233 inventory that are valuable for national security applications. This cooperative effort will support NNSA's missions related to safety, nuclear emergency response, and special nuclear material measurement and detection. This initiative will result in cost savings for the EM program and enable EM to move forward on cleanup of nuclear facilities which will allow other DOE missions to continue. In addition, EM has established a partnership with NNSA to build upon the success of the Supply Chain Management Center, leveraging buying power across the combined EM and NNSA complexes for commonly used goods and services with the objective of realizing cost savings for the EM program similar to those NNSA has achieved.

Safety Culture

The safety of EM workers is a core value that is incorporated into every aspect of the EM program. To best protect our workers, EM has a goal of zero accidents or incidents in the work place and to date, has maintained a strong safety record. EM continues to utilize the Integrated Safety Management System to ensure that all work activities are appropriately scoped, analyzed for hazards, comprehensively planned to eliminate or mitigate those hazards, and effectively performed by trained employees. In addition, EM follows DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy* which instills the philosophy that line management is responsible for ensuring the safety when work is being performed. EM seeks to continue improvements in the area of safety by instituting corrective actions, promoting lessons learned, and developing new or improved processes.

EM strives to promote and maintain a healthy safety culture at all of its sites. DOE defines safety culture as "an organization's values and behaviors modeled by its leaders and internalized by its members, which serve to make safe performance of work the overriding priority to protect the workers, public, and the environment." As part of this effort, EM is working with DOE's Office of Health Safety and Security (HSS) and utilizing DOE's Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendations 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant* to guide its actions and decision-making. As part of this effort, HSS has provided guidance and recommendations including how to better promote the raising of safety concerns on projects such as the Waste Treatment and Immobilization Plant. HSS will also conduct independent "extent of condition reviews" of major EM capital projects this year including the Sodium Bearing Waste Treatment Facility at Idaho and the Salt Waste Processing Facility at the Savannah River Site. In accordance with the *Consolidated Appropriations Act Conference Report, FY 2012*, DOE, including EM and HSS, will conduct reviews of nuclear facility construction projects with a total project cost greater than $1 billion, to determine if those projects are being managed in a way that could pressure contractors or Department managers to lessen nuclear safety in order to demonstrate acceptable project performance.

To further instill a healthy safety culture in EM, within the next year, EM will conduct 'town hall' style meetings at its sites with defense nuclear facilities. At these meetings, EM senior leadership will emphasize the importance of maintaining a strong safety culture and soliciting employee input regarding safety. EM will continue to keep its employees, the public, and the states where cleanup sites are located, safe from radioactive and hazardous materials contamination. EM will also further instill core values and principles that will allow for improved communication and team building in order to accomplish its mission goals.

Compliance

Over the last 22 years, EM has maintained a working relationship with regulators and developed agreements and compliance milestones that provide the framework and schedule for cleaning up the Cold War legacy at DOE sites. There are approximately 40 such agreements. In FY 2011, EM met 97 percent of its enforceable agreement milestones. In light of the potential need to renegotiate some of the compliance milestones, EM's goal in FY 2013 is to meet 100 percent of its compliance agreement milestones.

The FY 2013 EM budget request funds the closure of high level waste tanks 18 and 19 in the Savannah River Site F-Tank Farm. At Los Alamos National Laboratory, FY 2013 funds expedite the disposal of much of the above-ground transuranic waste that is currently stored on the mesa at the Laboratory. In addition, all remedial actions related to soil cleanup will be completed in the northwest section of Oak Ridge National Laboratory.

Reducing Lifecycle Cost

EM will continue to identify opportunities to make strategic investments that reduce the overall cost of the cleanup program while shortening project and program schedules. The current life-cycle cost estimate for EM is $274 to $309 billion. This includes $100 billion in actual costs from 1997 through 2011, and an additional estimate of $174 to $209 billion to complete EM's remaining mission in the timeframe of 2050 to 2062. EM will continue to identify opportunities, including technology development, to reduce the life-cycle cost of its program. In FY 2013, EM will continue efforts to develop technologies that allow for the segregation and stabilization of mercury contaminated debris; develop attenuation-based remedies for groundwater; and utilize technologies that enable the safe extended storage of spent (used) nuclear fuel at DOE sites. To enhance its technology program, EM has established the position of Chief Scientist to provide recommendations to the Senior Advisor for Environmental Management on complex technical and design issues.

Contract and Project Management

To ensure that EM delivers the best value for the American taxpayers, the FY 2013 budget request reflects its continued improvement in acquisition, contract, and project management. EM will require more rigorous front-end planning ensuring contract statements of work and deliverables are based on clear project requirements and assessment of risks; nuclear safety requirements are addressed early; and changes to the contract and the project baseline are managed through strict and timely change control processes. EM will further improve acquisition processes by obtaining early involvement and approvals on various acquisition approaches from DOE senior management, including the Office of Engineering and Construction Management, the Office of Procurement and Assistance Management, the Office of the General Counsel, and the Office of Small and Disadvantaged Business Utilization.

In terms of project management, since August 2009, EM has been utilizing the Office of Science model for construction project review/project peer review process that relies on the expert knowledge and experience of certified engineers, scientists, DOE contractors, engineering laboratories, and the academic community. These reviews determine whether the scope of projects and the underlying assumptions regarding technology, management, cost, scope, and schedule baselines are valid and within budget. These reviews are scheduled to occur approximately every six months and assist EM with actively addressing problems and monitoring the effectiveness of the resulting corrective actions.

Over the last two years, EM has established separate operations activities and capital asset projects within its Project Baseline Summaries. Capital asset projects are managed in accordance with DOE Order 413.3B, *Program and Project Management for the*

Acquisition of Capital Assets. EM is currently finalizing the operations activities policy and the protocol to manage operations activities, which are not governed by DOE Order 413.3B.

EM's continued progress in contract and project management has resulted in EM meeting three of the five criteria needed in order to be removed from the Government Accountability Office's (GAO) High Risk List. GAO has noted that: EM has demonstrated strong commitment and leadership; demonstrated progress in implementing corrective measures; and developed a corrective action plan that identifies root causes, effective solutions, and a near-term plan for implementing those solutions.

One of GAO's remaining concerns is that EM must provide the capacity (people and resources) to address problems. To address GAO's first concern, EM's reorganization establishes project sponsor positions at Headquarters for all capital asset projects. EM is also continuing to enhance its partnership with the U.S. Army Corps of Engineers by supplementing selected project peer review teams with U.S. Army Corps of Engineers personnel who have demonstrated expertise in project and contract management.

GAO's second remaining concern is that EM must monitor and independently validate the many corrective measures that it has taken are both effective and sustainable over the long term. To address this concern, EM's Annual Performance Plans have been established as a vehicle for measuring, tracking, and validating progress. In addition, EM has developed an annual Continuous Improvement Plan for Contract and Project Management to guide and monitor improvements. EM will continue to share improvements in project and contract management with GAO and other stakeholders. EM is committed to continued improvements in contract and project management and is focused on being removed from GAO's High Risk List.

Highlights of the FY 2013 Budget Request

The FY 2013 budget request for EM is $5.65 billion, after offsets of $485.1 million. The offsets reflect the proposed reauthorization of the D&D Fund deposit ($463 million), and the use of prior year uncosted ($12.1 million) and unobligated ($10 million) balances to offset ongoing mission work in the EM program. The FY 2013 budget request for EM is made up of $5.49 billion for defense environmental cleanup activities. Examples of planned activities and milestones for FY 2013 by site-specific categories are:

Idaho National Laboratory, Idaho

(Dollars in Thousands)

FY 2012 Current Appropriation	FY 2013 Request
$389,800	**$405,397**

- *Complete operations of the Sodium Bearing Waste Treatment Facility.*

The Sodium Bearing Waste Treatment Facility supports the cleanup mission at Idaho National Laboratory by treating the remaining approximately 900,000 gallons of sodium bearing waste stored in tanks that are 35 to 45 years old. The treatment of this waste will enable EM to close the final four tanks, complete treatment of all tank waste at Idaho, and meet the Notice of Noncompliance Consent Order Modification to cease use of the Tank Farm Facility by December 31, 2012. Testing and readiness verification on the Sodium Bearing Waste Treatment Facility will be completed in preparation for startup in the third quarter of FY 2012.

- *Ship contact-handled transuranic waste to the Waste Isolation Pilot Plant, as well as retrieve buried waste.*

During FY 2013, approximately 4,500 cubic meters or more of contact-handled transuranic waste will be shipped to the Waste Isolation Pilot Plant for disposal. In addition, small quantities of buried waste will be retrieved and shipped to the Waste Isolation Pilot Plant for disposal.

Los Alamos National Laboratory, New Mexico

(Dollars in Thousands)

FY 2012 Current Appropriation	FY 2013 Request
$188,561	**$239,143**

- *Disposition of transuranic waste and low-level/mixed low-level waste.*

The Solid Waste Stabilization and Disposition Project is comprised of the treatment, storage, and disposal of legacy transuranic waste and low-level/mixed low-level waste generated between 1970 and 1999 at Los Alamos National Laboratory. The end-state of this project is the safe disposal of legacy waste. In FY 2013, to support the requirements in the 2005 Compliance Order on Consent, Los Alamos National Laboratory will disposition 1,603 cubic meters of transuranic waste and continue low-level/mixed low-level waste disposal activities.

- *Maintain soil and water remediation.*

The Soil and Water Remediation Project scope at Los Alamos National Laboratory includes identification, investigation, and remediation of chemical and/or radiological contamination attributable to past Laboratory operations and practices. The remaining scope of the project includes characterization, monitoring, and protection of the surface and groundwater at the Laboratory and approximately 860 Potential Release Sites left to be investigated, remediated or closed after evaluation and assessment of human health and ecological risks. In FY 2013, activities include: investigation and characterization of two Technical Areas under the Canon de Valle Capital Asset Project and completion of the investigation and corrective measures evaluation of Material Disposal Area T to obtain final regulatory remedy selection.

Oak Ridge Reservation, Tennessee

(Dollars in Thousands)

(Includes Safeguards & Security Funding)

FY 2012 Current Appropriation	FY 2013 Request
$419,758	$421,250

- *Maintain operation of the Transuranic Waste Processing Center.*

  The continued operation of the Transuranic Waste Processing Center enables EM to meet various regulatory milestones. By the end of FY 2013, Oak Ridge will process a cumulative total of 236 cubic meters of contact-handled transuranic waste and a cumulative total of 70 cubic meters of remote-handled transuranic waste at the Transuranic Waste Processing Center in preparation for eventual disposition. FY 2013 activities include the: continued transfers of transuranic waste bound for the Transuranic Waste Processing Facility; and the continued processing and disposition of contact-handled transuranic and remote-handled transuranic waste.

- *Mitigate mercury contamination at the Y-12 National Security Complex.*

  Mercury cleanup activities within the Y-12 National Security Complex are necessary to reduce the potential contamination of the Upper East Fork Poplar Creek that flows through the City of Oak Ridge. In FY 2013, with the utilization of American Recovery and Reinvestment Act funds, EM will complete characterization activities at the Y-12 National Security Complex land area formerly housing the Building 81-10 Mercury Recovery Facility.

Richland Site, Washington
(Dollars in Thousands)

(Includes Safeguards & Security Funding)

FY 2012 Current Appropriation	FY 2013 Request
$1,021,824	$1,037,773

- *Continue facility D&D and remedial actions within the River Corridor.*

The River Corridor Closure Project includes the D&D of contaminated facilities and various remedial actions along the Columbia River Corridor as part of EM's continued pursuit of the Hanford 2015 Vision. In an effort to reduce Hanford's cleanup footprint, FY 2013 activities include: operating the Environmental Restoration Disposal Facility in support of Hanford Site demolition and remediation activities; completing the interim response actions for the 100 N Area; completing the interim remedial actions for the 300-FF-2 Waste Sites; completing the selected removal and/or remedial actions for 13 high risk facilities in the 300 Area; and continuing the remediation of the 618-10 and 618-11 burial grounds.

- *Conduct groundwater remediation efforts.*

To protect the groundwater resources within the Hanford site, remediation activities that address groundwater contamination, including carbon tetrachloride, chromium, technetium, and strontium, must be conducted. In FY 2013, EM will: continue site-wide groundwater and vadose zone cleanup activities; groundwater contamination monitoring, operations, and necessary modifications of existing remediation systems; and deploy chemical and biological treatment to select areas in support of final remedies.

Office of River Protection, Washington

(Dollars in Thousands)

FY 2012 Current Appropriation	FY 2013 Request
$1,181,800	$1,172,113

- *Manage the tank farms in a safe and compliant manner until closure.*

The radioactive waste stored in the Hanford tanks was produced as part of the nation's defense program and has been accumulating since 1944. To ensure protection of the Columbia River, over 50 million gallons of radioactive waste must be removed and processed to a form suitable for disposal, and the 177 underground storage tanks to be stabilized. In FY 2013, activities include: complete bulk retrieval of one C Farm single shell tank; completing hard heel removal of two C Farm single shell tanks; operating the 222-S laboratory and 242-A evaporator; and continuing activities for tank waste mixing.

- *Continue construction of the Waste Treatment and Immobilization Plant complex.*

The Waste Treatment and Immobilization Plant is pivotal to EM's tank waste cleanup mission at Hanford. The Waste Treatment and Immobilization Plant provides the primary treatment capability to immobilize (vitrify) the radioactive tank waste at the Hanford Site. The Waste Treatment and Immobilization Plant complex includes five major facilities: Pretreatment Facility, High-Level Waste Facility, Low-Activity Waste Facility, Analytical Laboratory, and the Balance of Facilities. As of December 2011, the Waste Treatment and Immobilization Plant construction is approximately 59 percent complete and design is 84 percent complete. In FY 2013, activities include the following:

- At the Pretreatment Facility, continue engineering, design and large scale integrated testing to confirm the design of critical Pretreatment process vessels.
- At the High-Level Waste Facility, continue forming, rebar, and placement of concrete for High-Level Waste Facility walls and slabs on the third to fourth stories.
- At the Low-Activity Waste Facility, continue planning activities for construction startup and turnover of multiple Low-Activity Waste Facility systems to operations.
- At the Analytical Laboratory, complete mechanical systems procurement and complete electrical terminations.
- At the Balance of Facilities, complete Balance of Facilities Plant design engineering and complete construction of nine facilities that make up the Balance of Facilities including the Chiller Compressor Plant and Steam Plant.

Savannah River Site, South Carolina

(Dollars in Thousands)

(Includes Safeguards & Security Funding)

FY 2012 Current Appropriation	FY 2013 Request
$1,316,922	**$1,303,493**

- *Reduce radioactive liquid waste.*

The mission of the Liquid Tank Waste Management Program at Savannah River Site is to safely and efficiently treat, stabilize, and dispose of approximately 37 million gallons of legacy radioactive waste currently stored in 49 underground storage tanks. In FY 2013, activities include: continue construction of Salt Waste Processing Facility; continued operation of F and H Tank Farms; continued to operation the Defense Waste Processing Facility and the production of 312 canisters of high-level waste packaged for final disposition; continued operation of the Actinide Removal Process and Modular Caustic Side Solvent Extraction at planned rates; continued operation of the Saltstone Facility at planned rates; and continue construction of Saltstone Disposal Units 3-5.

- *Consolidation of special nuclear materials.*

In FY 2013, activities include: initiation of the processing of non-pit plutonium to produce plutonium oxide suitable for use in the MOX Fabrication Facility; packaging the non-MOX plutonium for disposition to the Waste Isolation Pilot Plant; reducing the residual plutonium-238 contamination in the F Area Materials Storage Facility; and initiating the disposition of any vulnerable spent (used) nuclear fuel in H Canyon that is not suitable for extended storage in L-Basin.

Waste Isolation Pilot Plant, New Mexico
(Dollars in Thousands)
(Includes Safeguards & Security Funding)

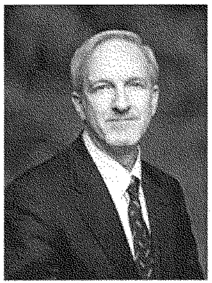
FY 2012 Current Appropriation	FY 2013 Request
$218,179	$202,987

- *Operate the Waste Isolation Pilot Plant in a safe and compliant manner and dispose of contact-handled and remote-handled transuranic waste from DOE sites.*

The Waste Isolation Pilot Plant in Carlsbad, New Mexico, is the nation's only mined geologic repository for the permanent disposal of defense-generated transuranic waste. In FY 2013, the EM budget request supports maintaining an average shipping capability of 21 contact-handled transuranic waste and 5 remote-handled transuranic waste shipments per week from major shipping sites such as Idaho, Savannah River Site, and Los Alamos National Laboratory.

Conclusion

Mr. Chairman, Ranking Member Sanchez, and Members of the Subcommittee, I am honored to be here today representing the Office of Environmental Management. EM is committed to achieving its mission and will continue to apply innovative environmental cleanup strategies to complete work safely, on schedule, and within cost thereby demonstrating value to the American taxpayers. I am pleased to answer any questions you may have.



David G. Huizenga
U.S. Department of Energy

President Obama designated David G. Huizenga as the Acting Assistant Secretary for the Office of Environmental Management, effective July 20, 2011.

A nationally and internationally recognized expert in nonproliferation and nuclear waste management issues, Mr. Huizenga has over 25 years of leadership, management, and technical experience in a wide variety of programs across the Department of Energy. He began his career researching and solving some of the Environmental Management program's greatest challenges as a Pacific Northwest National Laboratory research engineer at the Hanford site in 1985. In that capacity, Mr. Huizenga worked on long-term solutions to aging single-shell tanks that were leaking radioactive waste in the soil and other activities to protect the Columbia River and developed computer-modeling tools to evaluate the long-term performance of low-level radioactive waste forms.

Mr. Huizenga played a successful leadership role for over a decade in the Office of Environmental Management, where he began as a technical advisor on waste management policy and ultimately served as a Deputy Assistant Secretary. He was instrumental in establishing complex-wide waste management and nuclear materials disposition strategies that were used to accelerate closure of the Rocky Flats Plant and the removal of special nuclear materials from Hanford and other sites. He worked closely with the Carlsbad Site Office to open the Waste Isolation Pilot Plant, the world's first deep geologic repository.

In 2002, Mr. Huizenga transferred to the National Nuclear Security Administration, where he has managed several key national security programs aimed at reducing the worldwide threat of nuclear terrorism by working cooperatively with over 100 countries to secure nuclear weapons and weapons-usable nuclear materials and enhance the detection of illicit trafficking of nuclear and other radioactive materials. From February 2002 to November 2002, Mr. Huizenga served as the Deputy Director of the Office of International Nuclear Safety and Cooperation. He then went on to serve as the Assistant Deputy Administrator for the Office of International Material Protection and Cooperation. Mr. Huizenga became the Principal Assistant Deputy Administrator for the $2.5 billion Office of Defense Nuclear Nonproliferation in January 2011.

Mr. Huizenga is well known and respected for being a consensus builder and team player both within the U.S government and in the international community. In recognition of his international credentials, Mr. Huizenga served four years as the U.S. Senior Technical Advisor on the International Atomic Energy Agency (IAEA) Radioactive Waste Advisory Committee. Working with the Department of State, he led the technical negotiations for the 1997 IAEA Radioactive Waste and Spent Fuel Convention. He has testified numerous times before Congress on matters of international and national security.

Mr. Huizenga has a Bachelor of Science in Chemistry and a Masters in Chemical Engineering from Montana State University. He graduated as Outstanding Senior Chemist, Sigma Xi, 1980, and Outstanding Analytical Chemist, American Chemical Society, 1980. He has received Meritorious Presidential Rank Awards in 2000 and 2008 and the Secretary of Energy Gold Award in 1998.

Mr. Huizenga lives in Arlington, Virginia with his wife and two children.

TESTIMONY OF

DR. PETER S. WINOKUR, CHAIRMAN

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

SAFETY OVERSIGHT OF DEPARTMENT OF ENERGY DEFENSE NUCLEAR FACILITIES

SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

APRIL 17, 2012

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to testify on nuclear safety issues at defense nuclear facilities operated by the Department of Energy (DOE) and the National Nuclear Security Administration (NNSA). Clearly, this is a period of significant transition for DOE, which includes billions of dollars in construction projects and a huge portfolio of site cleanup work—in addition to ongoing mission support activities. The Board believes it is prudent to proactively address safety issues at DOE's defense nuclear facilities to ward off threats to public health and safety and to resolve safety concerns early in the design process. The Board continues to champion the early integration of safety in design and efforts to strengthen DOE's safety culture. Today I will provide some background on the Defense Nuclear Facilities Safety Board's (Board) mission and how we operate, and then I will provide the Board's assessment of outstanding safety issues related to DOE and NNSA defense nuclear facilities.

I would like to begin by posing this question: Is the DOE defense nuclear facilities complex safer now than when the Board commenced operations in the late 1980s? The answer is yes. With respect to the challenges then facing the DOE and the Board, there is no question that the defense nuclear facilities complex is in a safer posture. However, we cannot ignore the current and emerging challenges that will define the future of DOE's defense nuclear facilities, the need for federal stewardship of this enterprise, and the federal commitment to protect the health and safety of the workers and the public. Today's challenges of aged infrastructure, design and construction of new and replacement facilities, and the undertaking of a wide variety of new activities in defense nuclear facilities coupled with ongoing mission support activities require continued vigilance in safety oversight to assure public and worker protection.

Statutory Mission of the Board

The Board was created by Congress in 1988. Congress tasked the Board to conduct independent safety oversight of defense nuclear facilities under the control or jurisdiction of the

Secretary of Energy. The Board's mission is to recommend actions that the Secretary of Energy needs to take to ensure adequate protection of public health and safety at its defense nuclear facilities. The Atomic Energy Act of 1954, as amended, currently establishes two categories of facilities subject to Board jurisdiction: (1) those facilities under the Secretary of Energy's control or jurisdiction, operated for national security purposes that produce or utilize special nuclear materials, and (2) nuclear waste storage facilities under the control or jurisdiction of the Secretary of Energy. The Board's jurisdiction does not extend to facilities or activities associated with the Naval Nuclear Propulsion Program, transportation of nuclear explosives or materials, the U.S. Enrichment Corporation, facilities developed pursuant to the Nuclear Waste Policy Act of 1982 and licensed by the Nuclear Regulatory Commission, or any facility not conducting atomic energy defense activities.

Under its enabling statute, 42 U.S.C. § 2286 *et seq.*, the Board is responsible for independent oversight of all programs and activities impacting public health and safety within DOE's defense nuclear facility complex, which has served to design, manufacture, test, maintain, and decommission nuclear weapons and for other national security purposes. The Board is authorized to review and analyze facility and system designs, operations, practices, and events, and to make recommendations to the Secretary of Energy that the Board believes are necessary to ensure adequate protection of public health and safety, including worker safety. In this regard, the Board's actions are distinguishable from a regulator in that the Secretary may accept or reject the recommendations in whole or in part.

This principle of adequate protection is well founded in case law, and derived from Congress's belief that DOE should provide safety equivalent to that found in the commercial nuclear sector. Over the past three decades, the senior leadership of the Department of Energy has embraced the concept of adequate protection by promulgating it in rules and regulations, most recently DOE Policy 420.1, *Nuclear Safety Policy*, which states:

> "It is the policy of the Department of Energy to design, construct, operate, and decommission its nuclear facilities in a manner that ensures adequate protection of workers, the public, and the environment."

DOE's policy, directives, and regulations treat adequate protection as the only acceptable condition. DOE's nuclear safety policy requires that its operations be conducted such that (a) individual members of the public are provided a level of protection from the consequences of DOE operations such that individuals bear no significant additional risk to life and health to which members of the general population are normally exposed, and (b) DOE workers' health and safety are protected to levels consistent with or better than that achieved for workers in similar industries. Per DOE's policy, there is no provision to expose workers, the public, or the environment to greater risk based on cost or other considerations.

Under its statute, the Board must consider the technical and economic feasibility of implementing its recommended measures. Consistent with the approach taken by DOE and commercial nuclear regulations, the Board is not required to refrain from issuing a safety recommendation based on either consideration. Nonetheless, in formulating its recommendations to the Secretary of Energy, the Board is confident that it has considered the technical and economic feasibility of each of its recommendations. The Board is very mindful of the need for efficient and cost-effective solutions to safety problems at defense nuclear facilities. In evaluating the proper course of action for existing facilities that do not meet modern industry standards and design requirements, both the Board and DOE consider the entire suite of options for mitigating hazards as well as factors such as the remaining life of the facilities, schedules for replacing them, and means to mitigate disruptions to ongoing operations that may result from recommended safety improvements. But the Board has no authority to specify a particular solution; that authority is the Secretary's alone.

Under the Board's statute, the Secretary of Energy may "accept" a Board recommendation but make a determination that its implementation is impracticable because of budgetary considerations or because the implementation would affect the Secretary's ability to meet the annual nuclear weapons stockpile requirements. The Secretary must report any such decision to the President and Congress. The Secretary of Energy has never made a determination that a Board Recommendation cannot be implemented due to budget impracticability. The Board believes this is strong evidence that we have executed our statute in a faithful and responsible manner.

Finally, if the Board determines that a recommendation relates to an imminent or severe threat to public health and safety, the Board is required to transmit its recommendations to the President, as well as to the Secretaries of Energy and Defense. After receipt by the President, the Board is required to make such recommendations public and transmit them to the Committees on Armed Services and Appropriations of the Senate and to the Speaker of the House.

The Board's enabling statute also requires the Board to review and evaluate the content and implementation of health and safety standards, including DOE's orders, rules, and other safety requirements, relating to the full life cycle of defense nuclear facilities, including design, construction, operation, and decommissioning. The Board must then recommend to the Secretary of Energy any specific measures, such as changes in the content and implementation of those standards that the Board believes should be adopted to ensure that public health and safety are adequately protected. The Board is also required to review the design of new defense nuclear facilities before construction begins, as well as modifications to older facilities, and to recommend changes necessary to protect health and safety. An action of the Board, or failure to act, may not, however, delay or prevent the Secretary of Energy from carrying out the construction of such a facility. The Board periodically reviews and monitors construction at these defense nuclear facilities to evaluate whether construction practices and quality assurance ensure design requirements related to nuclear safety are met.

In support of its mission, the Board may conduct investigations, issue subpoenas, hold public hearings, gather information, conduct studies, establish reporting requirements for DOE, and take other actions in furtherance of its review of health and safety issues at defense nuclear facilities. These powers facilitate accomplishment of the Board's primary function, which is to independently oversee the safety of DOE's defense nuclear facilities. The Secretary of Energy is required to cooperate fully with the Board and provide the Board with ready access to such facilities, personnel, and information the Board considers necessary to carry out these responsibilities.

The Board does not impose requirements on DOE's capital projects or other activities. The Board operates by ensuring that DOE identifies a satisfactory set of safety requirements for a project or operation, and then evaluating DOE's application of those requirements. The safety requirements are embodied in DOE's directives and/or invoked in national consensus standards. For example, the requirement that facilities withstand seismic events and other natural phenomena hazards is a DOE requirement that is implemented in a graded fashion, including consideration of the hazard associated with the facility. The requirement to assess the probabilistic seismic hazard analysis for DOE facilities built in seismically active areas every decade is likewise a DOE requirement. Up-to-date analyses incorporate the best information available about the earthquake hazards at each site, and are vital to ensure that all DOE facilities provide adequate protection for seismic events, including existing facilities such as the Los Alamos Plutonium Facility and proposed facilities such as the Uranium Processing Facility at the Y-12 National Security Complex.

Resource Needs of the Defense Nuclear Facilities Safety Board

Now I would like to say a few words about the Board's Fiscal Year (FY) 2013 Budget Request. The President's budget request for FY 2013 includes $29.415 million in new budget authority for the Board. This is an increase of approximately $300,000 compared to FY 2012 and will support a staffing level of 120, which is the target that the Board has been growing toward for the past several years. Given the current pace and scope of activities in the DOE defense nuclear complex, the Board believes this level of staffing is necessary to provide sufficient independent oversight to ensure that public and worker health and safety are adequately protected. The Board endeavors to provide its oversight in a cost-effective and efficient manner by emphasizing the early integration of safety in design, which is necessary to avoid costly redesigns and modifications of existing facilities at later times. For the Board, oversight requires the technical resources necessary to provide assurance that DOE is not at risk of a serious nuclear accident, which must be prevented to protect public and worker health and safety. Without such assurance, the American public will not support DOE's work to maintain the nation's nuclear deterrent.

The Board's budget is essentially devoted to maintaining and supporting an expert staff of engineers and scientists (most of whom have technical master's degrees or doctorates) required to accomplish our highly specialized work. Seventy-one percent of our budget request for FY 2013 is for salaries and benefits, 4 percent is for travel and transportation (essential because of the need to physically visit defense nuclear facilities), and 3 percent is for technical expert contracts. The remainder is for rent, information technology and communication expenses, security, administrative support, training, and supplies, which are largely fixed costs. In all, approximately 80 percent of the Board's obligations are directly related to technical oversight. As you will see in my assessment of safety issues in this testimony, the workload of providing health and safety oversight is growing as the defense nuclear complex evolves, and will continue for decades as DOE and NNSA continue cleanup activities and weapons operations to support DOE's national security mission.

Scope of the Board's Mission

The Board is required to provide safety oversight of increasingly complex, high-hazard operations critical to national defense, including assembly and disassembly of nuclear weapons, fabrication of plutonium pits and weapon secondaries, production and recycling of tritium, criticality experiments, subcritical experiments, and a host of activities to address the radioactive legacy of nearly 70 years of these operations. Additionally, even with DOE's decision to suspend the Chemistry and Metallurgy Research Replacement project at Los Alamos, the Board is required to provide oversight for about $20 billion in new construction projects.

We believe that safety serves as an enabler to DOE's mission. In the area of new design and construction, the failure to identify design flaws that could impact public and worker health and safety early in the design process can significantly increase project costs due to the cost of re-engineering and the need to make post-construction modifications to complex DOE defense nuclear facilities. Such flaws have in the past typically increased costs and delayed operations while corrections were made. With DOE's design and construction costs on the order of $20 billion, each increase in project cost of one percent equates to an increase of about $200 million. Consequently, the Board's Fiscal Year 2013 Budget Request provides cost-effective oversight while protecting public and worker health and safety.

In a joint report to Congress on July 19, 2007, the Board and DOE agreed that early integration of safety in design is both crucial and cost-effective, as it avoids schedule delays as compared to the case when safety issues are recognized late in the design process (or worse, after construction has commenced). In most cases, the types of safety measures needed to meet DOE's safety requirements are a small fraction of the cost of the project. The same principle applies to oversight of operations—in an effective Integrated Safety Management system, hazards are recognized while the procedure for an operation is being developed, safety controls are built into the process, and the operation is then conducted safely and efficiently. Finally, the Board ensures that new technology developed by DOE that is important to safety is fully mature and capable of performing its intended safety function.

The effort required for the Board to provide safety oversight of operations in existing defense nuclear facilities is increasing, because many existing DOE facilities are structurally unsound and the transition to new facilities is decade(s) long, requiring increased oversight of aging infrastructure. The Chemical and Metallurgy Research Facility at Los Alamos National Laboratory and the 9212 Complex at the Y-12 National Security Complex are of particular concern because of their deficient structures and advanced age. The Board carefully evaluates the efficacy and reliability of the safety systems supporting programmatic operations in such facilities, particularly the need for safety system upgrades to ensure performance if needed until these aged facilities can be replaced. Such facilities also experience age-related operational mishaps and equipment failures that require specific safety evaluation by the Board, further increasing the Board's workload.

While the deferral of the Chemistry and Metallurgy Replacement Facility will allow the Board to suspend oversight of its design (once DOE reaches a stopping point in its design effort), the Board will need to evaluate the safety-related aspects of DOE's plan to accomplish that mission in existing facilities throughout the DOE complex. It is important to recognize DOE's ongoing operations to support the nation's nuclear deterrent will continue, and the need for effective safety oversight of them remains, even as new design projects come and go.

Impact of DOE Governance Reform Initiatives

The Board is the only agency that provides independent technical safety oversight of DOE's defense nuclear facilities. The Board remains the last line of defense to ensure DOE line management implements its safety requirements needed to ensure accidents do not happen within the defense nuclear weapons complex. The DOE-Board independent safety oversight model has yielded a positive safety performance record in DOE's defense nuclear complex since the Congress established the Board.

However, DOE is undertaking initiatives to create and test new governance models that rely more heavily on the objectivity of its line organizations for safety oversight, eliminate or streamline its directives, and eliminate or streamline contractor requirements to achieve more efficient operations. In particular, NNSA's reform initiatives are aimed at moving toward pervasive reliance on its contractors' assurance systems. The emphasis on streamlining federal safety oversight and reducing safety requirements can have the unintended consequence of reducing safety at DOE's defense nuclear facilities. Board oversight, as defined in its statute, is an essential element in ensuring DOE's regulatory framework for safety is adequate in light of those changes. It has been necessary for the Board to devote extensive resources toward reviewing the myriad changes to safety directives that DOE is pursuing under the auspices of reform, toward evaluating the effectiveness of the contractor self-assurance systems that DOE plans to rely on for safety oversight, and toward evaluating the impacts of the associated changes in DOE's oversight organizations. Safety and efficiency need not be mutually exclusive objectives if carefully managed.

The Board issued Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*, which provides a framework for DOE's efforts to identify and address failed or poor safety culture at its projects and operations. The Secretary of Energy accepted this recommendation, and the Board is working with DOE on its implementation. It is imperative that DOE constantly assess and maintain a strong safety culture throughout the defense nuclear complex. This may seem like an exercise in philosophy, but the hazards posed by a failed safety culture are real and have led to disasters in American industry.

For example, the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling concluded that the Macondo well blowout revealed such systematic failures in risk management that they placed in doubt the safety culture of the entire industry. A key finding in the commission's January 2011 report is that fundamental reform will be needed in both the structure of those in charge of regulatory oversight and their internal decision-making process to ensure their political autonomy, technical expertise, and their full consideration of environmental protection concerns. Similarly, the report issued just last month by the National Institute for Occupational Safety and Health on federal regulatory enforcement at West Virginia's Upper Big Branch Mine South concluded that the catastrophic explosion at the mine likely could have been prevented if the Mine Safety and Health Administration had engaged in timely enforcement of the Federal Mine Safety and Health Act and applicable standards and regulations.

Likewise, the Board seeks to ensure that oversight and decision-making processes that affect safety requirements in the DOE defense nuclear complex remain strong and technically defensible. The bottom line is that a nuclear accident is unacceptable to the public and the Administration.

Nuclear Safety Issues at DOE and NNSA Defense Nuclear Facilities

The Board evaluates all of DOE's and NNSA's activities at defense nuclear facilities in the context of Integrated Safety Management. The core functions of Integrated Safety Management are straightforward and have been institutionalized in policy by DOE and NNSA in response to the Board's recommendations. They are:

- Define the scope of work
- Analyze the hazards
- Develop and implement hazard controls
- Perform work within controls, and
- Provide feedback and continuous improvement

Integrated Safety Management also institutionalizes guiding principles that form the basis for a safety-conscious and efficient organization, including:

- Balanced mission and safety priorities
- Line management responsibility for safety
- Competence commensurate with responsibility, and
- Identification of safety standards and requirements appropriate to the task at hand

Integrated Safety Management is a process-based approach in which safety considerations are built into activities as they are planned and into facilities as they are designed. It is far more effective than attempting to add safety measures after an activity is already planned or after a facility's basic design is established. It is also far more effective than an outcome-based approach in which thorough consideration of safety only occurs after an inadequately planned activity results in an undesirable outcome. In a defense nuclear facility, that undesirable outcome could be a catastrophic event that cripples the facility and harms the workers and the public. It is critical to avoid the low-probability, high-consequence event that can cripple a facility or program. A performance-based outcome approach may appear successful on the surface, but underlying weakness in processes can lead to serious accidents and unwanted results.

When properly implemented at all levels, Integrated Safety Management results in facility designs that efficiently address hazards, operating procedures that are safe and productive, and feedback that drives continuous improvement in both safety and efficiency. Shortcomings in safety and efficiency in the operation of DOE and NNSA defense nuclear facilities can almost always be related to a failure to apply Integrated Safety Management.

I would like to highlight the following safety issues as particularly important to ensuring that the defense nuclear complex can safely accomplish its missions:

- Earthquake Hazard at Los Alamos National Laboratory
- Safety Implications of Facility Design Changes
- Overhaul and Reduction of Safety Directives
- Maintaining Adequate Safety Controls
- Storage and Disposal of Nuclear Materials

Earthquake Hazard at Los Alamos National Laboratory

A severe accident at the Plutonium Facility (PF-4) at Los Alamos National Laboratory would present a significant risk to the public, and is therefore one of the Board's greatest safety concerns. On October 26, 2009, the Board issued Recommendation 2009-2, *Los Alamos National Laboratory Plutonium Facility Seismic Safety*, which recommended actions to protect the public from the consequences of a large earthquake and subsequent large fire at PF-4. The Board followed up by issuing Recommendation 2010-1, *Safety Analysis Requirements for Defining Adequate Protection for the Public and the Workers*, to address DOE's interpretation of its Nuclear Safety Management Rule (10 CFR Part 830) and the associated DOE standard for preparing documented safety analyses. The rule and the standard form the underpinning for ensuring adequate protection of the public at DOE's defense nuclear facilities. The standard establishes a 25 rem Evaluation Guideline for offsite exposure. If conservatively calculated accident consequences approach the Evaluation Guideline, safety controls are required to achieve adequate protection of the public by reducing offsite exposure. The Board was concerned that managers at NNSA had approved the 2008 documented safety analysis for PF-4 as compliant with the rule and the standard, when the postulated accident consequences were two orders of magnitude (factor of 100) greater than the Evaluation Guideline.

In response, NNSA took immediate actions to reduce the material at risk, combustible materials, and ignition sources. NNSA subsequently completed analyses confirming that a large earthquake will likely damage the PF-4 structure and many of its safety systems. As a result, NNSA reinforced several structural elements, including the roof. NNSA is continuing to analyze the performance of PF-4 in an earthquake, and further structural upgrades may be needed.

The Board held a public hearing in Santa Fe, New Mexico, on November 17, 2011, to discuss NNSA's plan to mitigate the remaining risks. Further analyses to determine whether the current structure of the facility can survive an earthquake must be completed. The Board is not satisfied with the slow schedule for upgrading critical safety systems to survive an earthquake, particularly the ventilation system relied on to contain radioactive material released inside the building. At this point in time, NNSA still has not clearly defined regulatory criteria and a sound technical basis that demonstrate the PF-4 safety basis will provide adequate protection for the public and workers.

Safety Implications of Facility Design Changes

Safety issues have arisen at the Hanford Waste Treatment and Immobilization Plant and the Uranium Processing Facility at the Y-12 National Security Complex as a result of DOE and its contractors altering safety-related aspects of the design without sufficient basis. Altering safety aspects of the design without adequately understanding the associated technical difficulties, complexities, or project risks involved can reduce the safety margin of the design, create new safety issues, and imperil the success of the project. Furthermore, maintaining consistency between the design and the safety analysis is the most efficient and cost-effective approach. DOE's own project management requirements provide that in a properly managed nuclear project, safety features of the design should be decided upon during the conceptual design phase, before Critical Decision 1, and revised later only when there is a solid technical basis justifying the change. In the end, each DOE defense nuclear facility must have a defensible safety basis that has identified preventive and mitigative controls that reduce the dose consequences to the public and workers to acceptable levels following an accident.

Overhaul and Reduction of Safety Directives

Robust oversight, both by line management and independent oversight organizations, is fundamental to assuring safety at defense nuclear facilities. The Board remains the last line of defense to ensure DOE line management implements safety requirements needed to prevent accidents. In pursuit of more efficient operations, DOE is undertaking initiatives to (1) create and test new governance models that rely more heavily on line organizations for safety oversight and (2) eliminate or streamline complex-wide directives and contractual requirements.

In 2011, DOE made significant changes to its directives system governing construction, operations, maintenance, and decommissioning of defense nuclear facilities. By year's end, 49 directives had been cancelled, and 53 more were revised or recertified. The Board reviewed every change made to each safety-related directive, and in many instances identified that the proposed changes would weaken essential safety requirements. DOE retained the majority of the safety requirements in its directives system; however, some requirements that the Board believed were important for safety were removed or weakened. In other instances, the Board's input enabled DOE to strengthen key directives for startup of nuclear facilities and quality assurance programs.

The next phase of this directives overhaul is implementation of the revised directives. The Board continues to question, as it did during its May 25, 2011, public hearing, whether DOE can assure that the modified directives are adequate to maintain nuclear safety. The Board will closely monitor implementation of the modified set of safety directives in the field.

Maintaining Adequate Safety Controls

The Board has raised concerns in a number of instances where DOE and NNSA sought to use less conservative accident calculations to downgrade engineered safety systems. The Board is particularly concerned with DOE's and NNSA's reduced emphasis on following the well-established "hierarchy of controls" defined in DOE Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*. This standard dictates that engineered structures, systems, and components are to be preferred over reliance on administrative controls. Such preference is based on the uncertainty of human performance. The Board sent DOE several letters in 2010 and 2011 pointing out, and seeking the technical basis for, changes in safety philosophy and analysis that were inconsistent with DOE Standard 3009. Examples of such changes include:

- At the Tritium Facility at Lawrence Livermore National Laboratory, the contractor proposed removing the credited safety function of a glovebox that confines radioactive gases, and relying instead on an alarm to alert workers that tritium gas has been released.

- At the Y-12 National Security Complex, NNSA approved removing the analysis of chemical and toxicological hazards from the safety basis for the Highly Enriched Uranium Materials Facility, and then directed the contractor to evaluate downgrading some or all fire safety measures credited in the safety analysis, including the secondary confinement system. The Safety Design Strategy for the Uranium Processing Facility, currently in design, likewise excluded toxicological hazards from the safety analysis.

- At the Hanford Tank Farms, DOE approved downgrading the safety importance of ventilation systems that limit the accumulation of flammable gas and thereby help to prevent explosions in the high-level waste tanks.

- At the Savannah River Site's Tritium Facilities, NNSA approved downgrading engineered safety controls that would prevent large releases of tritium. The safety basis was revised to specify mitigative and administrative controls, such as requiring workers in the vicinity of the facilities to take shelter until the plume of tritium released in an accident leaves the area.

The Board is closely monitoring DOE's current effort to revise DOE Standard 3009 to ensure that it continues to specify the correct hierarchy of safety controls. The Board sees many of DOE's actions as a reduction of defense-in-depth, which should instead be strengthened in light of lessons learned from the Fukushima reactor accident in Japan and the Deepwater Horizon oil spill in the Gulf of Mexico.

Storage and Disposal of Nuclear Materials

DOE faces several challenges pertaining to defense-related nuclear wastes and surplus nuclear materials. These materials exist in many chemical and physical forms, including large inventories of plutonium, uranium, used nuclear fuel, and other highly radioactive isotopes. More materials are being added to these inventories as DOE ends Cold War era programs, decommissions old nuclear facilities, and uncovers or produces additional wastes during site cleanup work. Three main challenges exist: (1) DOE must provide safe interim storage for these materials, (2) DOE must develop timely disposition plans to limit the risks to workers and the public, and (3) DOE must identify the facilities and infrastructure needed to complete the disposition mission.

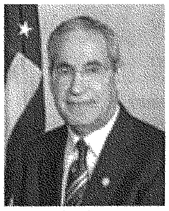
On February 28, 2011, the Board sent a letter to DOE expressing concerns about the potential premature shutdown of the nation's only large-scale radiochemical processing facility, the Savannah River Site's H-Canyon. Shutting it down could have significant unintended safety consequences due to the orphaning of unprocessed materials. During the Board's public hearing at the Savannah River Site on June 17, 2011, DOE committed to develop a resumption plan for H-Canyon operations. Later in 2011, DOE directed the facility's contractor to use H-Canyon and the associated HB-Line facility to process up to 3.7 metric tons of plutonium materials. DOE also directed its contractor to prepare to process Sodium Reactor Experiment Fuel, one of the least stable forms currently in storage in Savannah River's L Basin.

Conclusion

I anticipate that the issues I have described are familiar to DOE, NNSA, and our Congressional oversight committees. They have been previously identified by the Board in public documents, such as letters to DOE and NNSA, reports to Congress that summarize unresolved safety issues concerning design and construction of defense nuclear facilities, reports to Congress on aging facilities, and the Board's Annual Report to Congress. These reports and documents are available for review on the Board's public web site.

Dr. Peter S. Winokur, Ph.D.

Chairman of the Defense Nuclear Facilities Safety Board



Dr. Peter S. Winokur of Maryland has been appointed a Member of the Defense Nuclear Facilities Safety Board for a term expiring October 18, 2014. Dr. Winokur has more than 40 years of experience as a scientist and engineer in the field of radiation effects science, technology, and hardness assurance in support of military and space systems. A Fellow of the Institute of Electrical and Electronic Engineers and the American Physical Society, he was selected as one of the most highly cited researchers in Engineering by the Institute for Scientific Information, which lists the 250 most highly cited researchers in the world in given scientific fields.

Resume

2010 – Present	Chairman, Defense Nuclear Facilities Safety Board
2006 – 2010	Member, Defense Nuclear Facilities Safety Board
2005 – 2006	Senior Policy Analyst, Congressional Affairs, National Nuclear Security Administration. Liaison to Congress on a broad range of policy, legislative, and budget issues dealing with nuclear weapons, nuclear nonproliferation, energy, and research and development.
2001 – 2004	IEEE Congressional Fellow, Office of Senator Harry Reid. As Energy and Transportation Advisor, crafted energy policy that included tax legislation for renewable energy, resulting in billions in economic development and the creation of tens of thousands of jobs.
1989 – 2000	Manager, Radiation Technology and Assurance Department, Sandia National Laboratories. Led programs focused on radiation-effects science and technology, hardness assurance, and development of radiation-hardened microelectronics for military and space applications.
1987 – 1989	Supervisor, Radiation Technology and Materials Division, Sandia National Laboratories. Radiation physics, materials, and modeling in support of advanced technologies with severe reliability and radiation hardness requirements. Initiated SEMATECH programs dealing with equipment and processes for improved yield and reliability.
1983 – 1987	Member Technical Staff, Advanced Microelectronics Development Division, Sandia National Laboratories, Albuquerque, NM.
1979 – 1983	Senior Staff Physicist, Radiation Effects Branch Harry Diamond Laboratories, Adelphi, MD.
1969 – 1979	Physicist, Radiation Effects Branch Harry Diamond Laboratories, Washington, DC.
1968 – 1969	Scientist, Optical Character Reader Division Control Data Corporation, Rockville, MD.

Dr. Winokur has won numerous awards including the 2000 IEEE Millennium Medal, IEEE Nuclear & Plasma Sciences Merit and Shea Awards, R&D 100 Award, Industry Week's Top 25 Technologies of Year, Discover Award, Cooper Union's Gano Dunn Award, and prize-winning papers. He is the author of 140 publications in the open referred literature, including more than 30 invited papers, book chapters, and short courses.

Education

Ph.D., University of Maryland, 1974: Physics
M.S., University of Maryland, 1971: Physics
B.S., The Cooper Union, 1968: Physics

DOCUMENTS SUBMITTED FOR THE RECORD

APRIL 17, 2012

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

STATEMENT OF
REAR ADMIRAL TERRY BENEDICT, USN
DIRECTOR, STRATEGIC SYSTEMS PROGRAMS
BEFORE THE
SUBCOMMITTEE ON STRATEGIC FORCES
OF THE
HOUSE ARMED SERVICES COMMITTEE
FY2013 STRATEGIC SYSTEMS
17 APRIL 2012

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THE HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

Introduction

Chairman Turner, Ranking Member Sanchez, distinguished Members of the subcommittee, thank you for this opportunity to discuss Navy's strategic programs. It is an honor to testify before you this morning representing the Navy's Strategic Systems Programs (SSP).

SSP's mission is to design, develop, produce, support and ensure the safety of our Navy's sea-based strategic deterrent, the Trident II (D5) Strategic Weapon System (SWS). The Trident II (D5) Submarine Launched Ballistic Missile (SLBM) represents the nation's most survivable strategic deterrent capability. The men and women of SSP and our industry partners remain dedicated to supporting the mission of our Sailors on strategic deterrent patrol and our Marines and Sailors who are standing the watch, ensuring the security of the weapons we are entrusted with by this nation.

The Navy provides the most survivable leg of the US nuclear triad with our ballistic missile submarines (SSBNs) and the Trident II (D5) SWS. A number of factors have contributed to an increased reliance on the sea-based leg of the triad. The 2010 Nuclear Posture Review reinforced the importance of the SSBNs and the SLBMs they carry. Under the New START Treaty, SLBMs will comprise a majority of the nation's operationally deployed nuclear warheads, thus increasing the nation's reliance on the sea-based leg.

Ensuring the sustainment of the sea-based strategic deterrent capability is a vital, national requirement today and into the foreseeable future. Our budget request provides the required funding in FY 2013 for the Trident II (D5) SWS. To sustain this capability, I am focusing on four priorities: Nuclear Weapons Surety; the Trident II (D5) SWS Life Extension Program; the OHIO Replacement Program; and the Solid Rocket Motor (SRM) Industrial Base. Today, I would like to discuss my four priorities and why these priorities are keys to the sustainment of the Navy's sea-based strategic deterrent and its future viability.

Nuclear Weapons Surety

The first priority I would like to address, and arguably the most important priority, is the safety and security of the Navy's nuclear weapons. Navy leadership has clearly delegated and defined SSP's role as the program manager and technical authority for the Navy's nuclear weapons and nuclear weapons security.

At its most basic level, this priority is the physical security of one of our nation's most valuable assets. Our Marines and Navy Masters at Arms provide an effective and integrated elite security force at our two Strategic Weapons Facilities in Kings Bay, Georgia and Bangor, Washington. US Coast Guard Maritime Force Protection Units have been commissioned at both facilities to protect our submarines as they transit to and from their dive points. These Coast Guardsmen and the vessels they man provide a security umbrella for our OHIO Class submarines. Together, the Navy, Marine Corps and Coast Guard team form the foundation of our Nuclear Weapons Security Program.

SSP's efforts to sustain the safety and improve the security of these national assets continue at all levels of the organization. My command maintains a culture of self-assessment in order to sustain safety and security. We continue to focus on the custody and accountability of the nuclear assets that have been entrusted to the Navy. SSP's number one priority is to maintain a safe, secure and effective strategic deterrent.

D5 Life Extension Program

The next priority I would like to discuss is SSP's life extension efforts to ensure a future, effective and reliable sea-based deterrent. We are executing the Trident II (D5) Life Extension Program in cooperation with the UK, under the auspices of the Polaris Sales Agreement. I am pleased to report that our longstanding partnership with the UK remains strong.

The Trident II (D5) SWS continues to demonstrate itself as a credible deterrent and exceeds the operational requirements established for the system almost thirty years ago. Our allies and any potential rivals are assured the US strategic deterrent is ready, credible, and effective. However, we must remain vigilant of age-related issues to ensure a continued high level of reliability.

The Trident II (D5) SWS has been deployed on our OHIO Class ballistic missile submarines for over twenty years, and is planned for a service life of 50 years. This is well beyond its original design life of 25 years and more than double the historical service life of any previous sea-based deterrent system. As a result, significant efforts will be required to sustain a credible and viable SLBM force from now until the end of the current OHIO Class SSBN in the 2040s as well as the end of the service life of the OHIO Replacement SSBN in 2080s.

The Navy is proactively taking steps to address aging and technology obsolescence. SSP is extending the life of the Trident II (D5) SWS to match the OHIO Class submarine service life and to serve as the initial baseline mission payload for the OHIO Replacement submarine platform. This is being accomplished through an update to all the Trident II (D5) SWS subsystems: launcher, navigation, fire control, guidance, missile and reentry. Our flight hardware - missile and guidance - life extension efforts are designed to meet the same form, fit and function of the original system, in order to keep the deployed system as one homogeneous population and to control costs. We will also remain in continuous production of energetic components such as solid rocket motors. These efforts will provide the Navy with the missiles and guidance systems we need to meet operational requirements.

SSP recently achieved a significant programmatic milestone in our life extension program. The first end-to-end operational test of Trident II (D5) life-extension guidance system was successfully conducted in February from the USS TENNESSEE (SSBN 734). SSP embarked on a major overhaul of the guidance system over a decade ago to extend the life of the guidance system to match the hull-life of the OHIO Class SSBNs. This represented the most significant guidance engineering effort since the development of D5 over thirty years ago.

Another major step to ensure the continued sustainment of our SWS is our SSP Shipboard Integration efforts, which utilizes open architecture and commercial off-the-shelf hardware and software for shipboard systems. The first increment of this update is now being installed throughout the fleet and training facilities. To date, installation is complete on seven US SSBNs and all four UK SSBNs. This effort is a technical obsolescence refresh of shipboard electronics hardware and software upgrades, which will provide greater maintainability of the SWS and ensure we continue to provide the highest nuclear weapons safety and security for our deployed SSBNs.

To sustain the Trident II (D5) SWS, SSP is extending the life of the W76 reentry system through a refurbishment program known as the W76-1. This program is being executed in partnership with the Department of Energy, National Nuclear Security Administration. The W76-1 refurbishment maintains the military capability of the original W76 for approximately an additional thirty years.

In addition to the W76-1, the Navy also is in the initial stages of refurbishing the W88 reentry system. The Navy is collaborating with the Air Force to reduce costs through shared technology. These programs will provide the Navy with the weapons we need to meet operational requirements throughout the OHIO service life and the planned follow-on platform.

OHIO Replacement Program

One of the highest Navy priorities is the OHIO Replacement Program. The continued assurance of our sea-based strategic deterrent requires a credible SWS as well as the development of the next class of ballistic missile submarine. The Navy team is taking aggressive steps to ensure the OHIO Replacement SSBN is designed, built and delivered on time with the right capabilities at an affordable cost.

The Navy team has the benefit of leveraging the success of the VIRGINIA Class build program and the opportunity to implement many of those lessons-learned to help ensure we design the OHIO Replacement Program for affordability both in terms of acquisition and life cycle maintenance. Maintaining this capability is critical to the continued success of our sea-based strategic deterrent now and into the future.

The OHIO Replacement Program will replace the existing OHIO Class submarines. To lower development costs and leverage the proven reliability of the Trident II (D5) SWS, the OHIO Replacement SSBN will enter service with the Trident II (D5) SWS and D5 life-extended missiles onboard. These D5 life extended missiles will be shared with the existing OHIO Class submarine until the current OHIO Class retires. Maintaining one SWS during the transition to the OHIO Class Replacement is beneficial from a cost, performance, and risk reduction standpoint.

A critical component of the OHIO Replacement Program is the development of a common missile compartment that will support Trident II (D5) deployment on both the OHIO Class Replacement and the successor to the UK VANGUARD Class. The US and the UK have maintained a shared commitment to nuclear deterrence through the Polaris Sales Agreement since April 1963. The US will continue to maintain its strong strategic relationship with the UK for our respective follow-on platforms, based upon the Polaris Sales Agreement. As the Director of SSP, I am the US Project Officer for this agreement. Our programs are tightly coupled both programmatically and technically to ensure we are providing the most cost effective, technically capable nuclear strategic deterrent for both nations.

Consistent with the defense strategic guidance, the Navy is delaying the OHIO Replacement Program by two years. While the overall program is being delayed by two years, we are maintaining the original program of record for the design of the common missile compartment and SWS deliverables in order to meet our obligations to the UK. The US and UK are working jointly to prioritize risk and develop a mitigation plan under the auspices of the Polaris Sales Agreement.

Our continued stewardship of the Trident II (D5) SWS is necessary to ensure a credible and reliable SWS is deployed today on our OHIO Class submarines, as well as in the future on the OHIO Replacement SSBN. This is of particular importance as the reliance on the sea-based leg of the Triad increases as New START Treaty reductions are implemented. The OHIO Replacement will be a strategic, national asset whose endurance and stealth will enable the Navy to provide continuous, uninterrupted strategic deterrence into the 2080s.

Solid Rocket Motor (SRM) Industrial Base

The fourth priority I would like to discuss is the importance of the defense and aerospace industrial base. In particular, the decline in demand for the SRM industry has placed a heavy burden on Navy resources. The Navy is maintaining a continuous production capability at a minimum sustaining rate of twelve rocket motor sets per year through the Future Years Defense Plan. However, we previously have faced significant cost challenges as both NASA and Air Force demands have declined.

Over the past few years the Navy has worked with our industry partners to reduce overhead costs and minimize cost increases to the Department. Despite many efforts to address this issue, the industrial base remains volatile. Potential future unit cost increases due to further decline in SRM industrial base demand could impact the D5 Life Extension Program. We will continue to cautiously monitor the industrial base.

The OSD-led Interagency Task Force developed a *Solid Rocket Motor Industrial Base Sustainment and Implementation Plan.* One of the conclusions of the report is that "The Department must preserve the scientific, engineering and design skills and production capabilities necessary to support both large- and small-SRMs." SSP will continue to work with our industry partners, DoD, NASA, Air Force and Congress to sustain the Solid Rocket Motor industrial base and find ways to maintain successful partnerships to ensure this vital national capability is maintained.

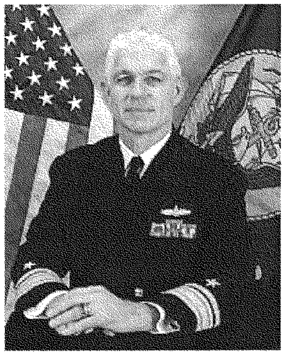
Conclusion

SSP will continue to maintain a safe, secure and effective strategic deterrent capability and focus on the custody and accountability of the nuclear assets entrusted to the Navy. Our budget request provides the necessary funds to sustain this capability in FY 2013. However, we must continue to be vigilant of unforeseen age-related issues to ensure the high reliability required of our SWS. SSP must maintain the engineering support and critical skills of our industry and government team to address any future issues with the current system as well as prepare for the future of the program.

Our nation's sea-based deterrent has been a critical component of our national security since the 1950s and will continue to assure our allies and deter our rivals well into the future. I am privileged to represent this unique organization as we work to serve the best interests of our great Nation.

United States Navy
Biography

Rear Admiral Terry Joseph Benedict
Director, Strategic Systems Programs



Rear Adm. Benedict is assigned as director of the Navy's Strategic Systems Programs (SSP). Benedict's previous flag assignment was as program executive officer for Integrated Warfare Systems, Office of the Assistant Secretary of the Navy (Research, Development and Acquisition), Washington, D.C.

He transferred to the engineering duty officer community in 1985. Benedict reported to Strategic Systems Programs in 1988 as a lieutenant. He has had eight previous billets within SSP in numerous technical branches, a field tour at the missile manufacturing facility and as the deputy director/technical director.

Benedict also had two tours in Naval Sea Systems Command; as a systems engineer and as executive assistant to the Commander.

Benedict graduated from the U.S. Naval Academy in 1982 with a Bachelor of Science degree. He also holds a Master of Science in Engineering Science and a Master of Business Administration. He is a graduate of the Advanced Program Management course at the Defense Acquisition University, the Executive Leadership Course at Carnegie Mellon and is a certified Project Management Professional.

Benedict assumed command as the 13th director, Strategic Systems Programs, May 7, 2010.

Updated: 24 October 2011

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HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON STRATEGIC FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON STRATEGIC FORCES
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: Status of Air Force Nuclear and Strategic Systems

STATEMENT OF: Major General William A. Chambers
Assistant Chief of Staff
Strategic Deterrence and Nuclear Integration

April 17, 2012

Introduction

Chairman Turner, Ranking Member Sanchez, distinguished Members of the Committee, thank you for the opportunity to discuss your Air Force's strategic forces.

As Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration, my team, on behalf of the Chief of Staff, leads planning, policy development, advocacy, integration, and assessment for the Airmen and the weapon systems performing Nuclear Deterrence Operations, a core function of our United States Air Force. *Continuing to Strengthen* our nuclear enterprise remains an Air Force priority, in fulfillment of the President's mandate that, as long as nuclear weapons exist, the United States will maintain a safe, secure, and effective arsenal.

The Strategic Guidance announced by the President and Secretary of Defense on the 5th of January states, "U.S. forces will be capable of deterring and defeating aggression by any potential adversary." It continues, "Credible deterrence results from both the capabilities to deny an aggressor the prospect of achieving his objectives and from the complementary capability to impose unacceptable costs on the aggressor."

Maintaining the credibility of our strategic deterrent requires a long-term commitment to our nuclear capabilities, through sustainment, investments in modernization, and eventual recapitalization. Most importantly, it requires deliberate development of the precious Human Capital required to maintain and operate our nuclear forces, and leading-edge Intellectual Capital to provide the innovative thinking that the 21st century security setting demands. The Air Force demonstrates such commitment every day.

In a constrained fiscal environment, the Air Force has made investments in the distinctive capabilities we provide to our joint and coalition partners. One of the distinct capabilities the Air Force provides the Nation is Global Strike, and the Air Force's ability to carry and deliver nuclear weapons to hold any target at risk is continually exercised under operational conditions. Results continue to confirm the readiness and accuracy of such capability. The Air Force helps ensure the Nation's worldwide power projection, even in the face of growing anti-access and area denial challenges, through funding of Air-Sea Battle priorities and through prudent investment in Continuing to Strengthen its Nuclear Enterprise.

Revitalizing Thinking

Every day, about 36,000 Airmen in the United States Air Force are performing Nuclear Deterrence Operations, a mission that remains vital in the 21st century. In many respects, the Cold War was fairly simple and mutual deterrence with the Soviet Union seemed predictable. As the 2010 Nuclear Posture Review indicated, "Russia remains America's only peer in the area of nuclear weapons capabilities. But the nature of the U.S. - Russia relationship has changed fundamentally since the days of the Cold War." During the Cold War, we became experts at Sovietology. We understood them and they understood us. Today, we have hit fast-forward in our thinking, seeking that same level of understanding about a wide array of potential adversaries and potential proliferators.

The Chief of Staff of the Air Force has tasked us to, "Revitalize thinking within the Air Force about crisis stability and 21st century deterrence dynamics." For 21st century deterrence, one size does not fit all, and deterrence of near-peers and other nuclear armed states requires new thinking and tailored application. Still, deterrence must ensure that potential adversaries, both peers and non-peers, lack incentive to use their nuclear capabilities. The non-peer case may be the most challenging, and our more likely threat. Our power projection capabilities must be credible in the eyes of potential adversaries, increasingly so in pre-crisis situations and especially in a regional context. The assurances and extended deterrence we provide allies strengthen our security relationships while supporting our nonproliferation goals. Such effects increase in importance in a complex, multi-polar environment. The Air Force is focused on these new dynamics.

Sustainment, Modernization, and Recapitalization

America continues to be a leader in nuclear nonproliferation. In fact, since the end of the Cold War, we have retired or dismantled tens of thousands of nuclear weapons. The current stockpile has undergone a 75 percent reduction since the fall of the Berlin Wall. While our arsenal size declines, the commitment to sustainment and modernization grows. This is not a paradox. The importance of each individual weapon increases as overall numbers go down; every weapon system and every warhead must be reliable. The FY13 President's Budget submission makes hard choices, appropriate to our constrained fiscal environment, but continues to invest in the enduring and compelling attributes the Nation needs from its Air Force deterrent forces.

We have a plan for two decades of sustainment and modernization to keep Minuteman III viable and credible until 2030. To prepare for beyond 2030, the Air Force has begun a Capability-Based Assessment and Initial Capabilities Document for a successor program, Ground Based Strategic Deterrence (GBSD). The DoD is preparing to begin a GBSD Analysis of Alternatives to study the full range of concepts to recapitalize the land-based leg of the Triad.

The recent Strategic Guidance also states, that "...while the U.S. military will continue to contribute to security globally, we will of necessity rebalance toward the Asia-Pacific region." Our ability to project power and hold targets at risk despite adversary employment of anti-access and area denial strategies is driving our choices in bomber force programs reflected in the President's budget submission.

The B-52 continues to provide critical stand-off capability and will be sustained until a replacement capability comes on line. We are accepting some risk in B-52 modernization in order to apply resources to ensure the B-2, our only long-range direct-strike asset, remains capable of penetrating in an anti-access and area denial environment. The combined capabilities of these bombers directly support our power projection requirements.

Over time, our ability to hold targets at risk with current technologies and systems will diminish. The nuclear-capable Long Range Strike Bomber (LRS-B) is a Department of Defense commitment to address that eventual shortfall. We remain committed to delivering a force of 80-100 new bombers starting in the mid 2020s.

We currently have service life extension programs in progress for the Air Launched Cruise Missile to ensure its viability through 2030; such programs include the guidance and flight control systems and warhead arming components. In the FY13 President's Budget, the program for its replacement, the Long-Range Standoff (LRSO), was delayed until FY15 as part of the adjustments necessary in our constrained fiscal environment. However, the LRSO Analysis of Alternatives, which began in August 2011, continues apace and is scheduled to be completed in early FY13. Despite the LRSO delay, there will not be a gap between ALCM and LRSO.

The B61 is an aging weapon, originally designed and built in the 1960s. Though they remain ready and reliable, some warheads in our current stockpile date back to 1978. Without refurbishment of key components, it will continue to age and eventually will not meet the requirements for a safe, secure and effective nuclear deterrent. The Department has fully funded the Air Force portion of the B61 Life Extension Program, which will deliver the first production unit at the end of FY19. The B61 is critical to bomber viability, deterrence of adversaries in a regional context, and support of our extended deterrence commitments.

To fund these high priority programs, the Air Force had to make the hard decision to restructure programs with unacceptable cost growth and technical challenges. Last year, we briefed you about initial steps we were taking to replace the UH-1N Huey helicopters, under a program called the Common Vertical Lift Support Program (CVLSP). Prioritization of available funding demands difficult choices, and as a result, the CVLSP program has been deferred. UH-1N Huey helicopters will continue to operate and support the nuclear security mission.

To ensure we continue to strengthen the nuclear security mission in both the United States and Europe, we made investments in our nuclear storage areas and missile security. In the United States, we installed Remote Visual Assessment (RVA) cameras at our Minuteman III Launch Facilities and started installing Remote Targeting Engagement Systems at our nuclear storage locations. We also recently began a $14.4M MILCON project to build a new Security Forces training facility at Camp Guernsey, Wyoming. In addition, U.S. and NATO funds are producing security upgrades for weapon storage sites in Europe.

One critical capability that underpins our deterrent forces is nuclear command, control, and communications, otherwise known as NC3. NC3 underpins U.S. nuclear deterrence and provides our Nation's leaders with the means to manage and employ a wide range of strategic options for rapid power projection. It is especially important with lower force structure numbers. The Air Force is entrusted with a major portion of our Nation's NC3 systems, and many of these systems are nearing the end of their lifecycles. Constrained budgets and increasing system complexity require us to pay special attention and use innovative management and program oversight. Over the past two years, the Air Force has developed strong links with all the other key NC3 stakeholders throughout the government, codified Air Force NC3 roles and responsibilities, and prioritized near-term NC3 programs for investment. While maintaining current NC3 capabilities is critical, this system must adapt to become more flexible and responsive to the future security environment.

NST Implementation

A little over a year ago, the New START Treaty (NST) entered into force, giving us until 5 February 2018 to meet our obligations to reduce and limit our strategic forces to meet the NST's central limits. To ensure the activities needed to achieve an ICBM and heavy bomber force compliant with NST's central limits, the Air Force has fully funded NST implementation with $20.1M in FY13 and an additional $50.6M through the FYDP. Implementation activities are underway including the reduction of systems no longer used to perform the nuclear mission. This includes the elimination of 39 heavy bombers in storage at Davis-Monthan Air Force Base and an environmental study to eliminate 103 empty ICBM silos. We are also looking at methods to convert some B-52Hs from dual-use mode to a conventional-only capability.

Human Capital

A safe, secure, and effective nuclear deterrent for the 21st century requires top-notch people dedicated to uncompromising stewardship. We are institutionalizing fixes and developing an enduring culture of self-assessment to *Continue to Strengthen* the nuclear enterprise. Increasing pass rates and leveling of repeat deficiencies during Nuclear Surety Inspections indicate success in this endeavor. Root cause analysis is embedded into process improvements in our enhanced nuclear inspection program and in initiatives to improve unit performance. Over the past 3 years, root cause analysis led to several structural, procedural and process improvements.

As part of our culture of self-assessment, we continue to refine our organizational constructs, an example being the successful transfer of CONUS munitions squadrons from Air Force Materiel Command to Air Force Global Strike Command.

We are also committed to the professional development of our Airmen through new formal training programs and more deliberate developmental education, all designed not only to bring Airmen up to date quickly on the current issues within the nuclear enterprise, but also to foster the critical thinking necessary for the 21st century security setting.

Closing

The Air Force provides two legs of our nuclear Triad and extended deterrence for Allies and partners for a relatively low cost. Nuclear Deterrence Operations amount to 4.6 percent of the total Air Force budget, about 1 percent of the total Department of Defense budget.

As events over the past year demonstrate, the United States does not get to choose the timing or location of a crisis. Having ready, diverse, and resilient capabilities to ensure stability during crises remains very important. The attributes of the Air Force's deterrent forces – the responsiveness of the ICBM and the flexibility of the bomber – underwrite the Nation's ability to achieve stability in the midst of the crises and challenges of the next few decades.

The President's budget submission makes hard choices, but retains the commitment to strong deterrent capabilities through modernization and recapitalization programs. That commitment is made manifest every day by the 36,000 Airmen performing deterrence operations, demonstrating those capabilities, and doing it with precision and reliability. They are trustworthy stewards of our Nation's most powerful weapons, still needed to project power, to deter and assure in the 21st century.

BIOGRAPHY

UNITED STATES AIR FORCE

MAJOR GENERAL WILLIAM A. CHAMBERS

Maj. Gen. William A. Chambers is Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration, Headquarters U. S. Air Force, Washington D.C. General Chambers is responsible to the Secretary and Chief of Staff of the Air Force for focus on Nuclear Deterrence Operations. He advocates for and oversees stewardship of Air Force nuclear weapon systems. In addition, he integrates the organizing, training and equipping of the Air Force's nuclear mission, and engages with joint and interagency partners for nuclear enterprise solutions.

General Chambers graduated from the U.S. Air Force Academy in 1978. He is a master navigator whose flying experience includes operational tours in the KC-135A and FB-111A, and an instructor tour in the T-43A. He has served as a policy planner on the Joint Staff, and as deputy executive assistant to the Chairman of the Joint Chiefs of Staff. The general led the Chief of Staff's Operations Group, and commanded the 11th Wing at Bolling Air Force Base, Washington, D.C. He has been the Director of Airman Development and Sustainment, Director of Air Force General Officer Management and Director of Communication, Office of the Secretary of the Air Force. General Chambers served as Deputy Commanding General, Combined Forces Command - Afghanistan and Combined Security Transition Command - Afghanistan, U.S. Central Command, Kabul, Afghanistan, from April 2006 to April 2007.

Prior to his current position, he was Vice Commander, U.S. Air Forces in Europe, Ramstein Air Base, Germany.

EDUCATION

1978 Bachelor of Science degree in history, U.S. Air Force Academy, Colorado Springs, Colo.
1985 Squadron Officer School, Maxwell AFB, Ala.
1989 Air Command and Staff College, by correspondence
1997 Master of Arts degree in national security and strategic studies, College of Naval Warfare, Newport, R.I.

ASSIGNMENTS

1. July 1978 - February 1979, student, undergraduate navigator training, Mather AFB, Calif.
2. March 1979 - May 1979, student, KC-135 Combat Crew Training School, Castle AFB, Calif.
3. May 1979 - March 1983, KC-135A navigator and instructor navigator, 71st Air Refueling Squadron, Barksdale AFB, La.
4. March 1983 - December 1983, student, FB-111A Combat Crew Training School, Plattsburgh AFB, N.Y.
5. December 1983 - March 1987, FB-111A navigator, instructor navigator, evaluator and Avionics Modernization Program Manager, 509th Bomb Wing, Pease AFB, N.H.

6. March 1987 - July 1990, T-43A instructor navigator, course director, executive officer and operations officer, 50th Airmanship Training Squadron, U.S. Air Force Academy, Colorado Springs, Colo.
7. July 1990 - January 1992, executive officer to the Commandant of Cadets, U.S. Air Force Academy, Colorado Springs, Colo.
8. January 1992 - July 1994, Chief, Central Region Basing Branch, and Chief, Special Basing Branch, Headquarters U.S. Air Forces in Europe, Ramstein Air Base, Germany
9. July 1994 - August 1994, air operations officer and Chief Liaison Officer to Headquarters European Command for Operation Support Hope, Stuttgart, Germany
10. August 1994 - July 1996, Deputy Commander, 86th Support Group, Ramstein AB, Germany
11. July 1996 - June 1997, student, College of Naval Warfare, Newport, R.I.
12. July 1997 - July 1998, nuclear policy planner and executive assistant to the Deputy Director for Strategy and Policy (J5), Joint Staff, the Pentagon, Washington, D.C.
13. July 1998 - February 2000, deputy executive assistant to the Chairman of the Joint Chiefs of Staff, Washington, D.C.
14. February 2000 - August 2001, Director, Commander's Action Group, Headquarters Air Combat Command, Langley AFB, Va.
15. September 2001 - November 2001, Director, Chief of Staff's Operations Group, Headquarters U.S. Air Force, Washington, D.C.
16. November 2001 - January 2004, Commander, 11th Wing, Bolling AFB, Washington, D.C.
17. March 2004 - August 2004, Deputy Director of Learning and Force Development, Deputy Chief of Staff for Personnel, Headquarters U.S. Air Force, Washington, D.C.
18. August 2004 - June 2005, Director of Airman Development and Sustainment, Deputy Chief of Staff for Personnel, Headquarters U.S. Air Force, Washington, D.C.
19. July 2005 - April 2006, Director, Air Force Senior Leader Management Office, then Air Force General Officer Management Office, Deputy Chief of Staff for Personnel, Headquarters U.S. Air Force, Washington, D.C.
20. April 2006 - April 2007, Deputy Commanding General, Combined Forces Command - Afghanistan, and then Combined Security Transition Command - Afghanistan, U.S. Central Command, Kabul, Afghanistan
21. May 2007 - November 2008, Director of Communication, Office of the Secretary of the Air Force, Washington, D.C.
22. November 2008 - May 2009, Director, Air and Space Operations, Headquarters U.S. Air Forces in Europe, Ramstein AB, Germany
23. June 2009 - June 2010, Vice Commander, U.S. Air Forces in Europe, Ramstein AB, Germany
24. July 2010 - present, Assistant Chief of Staff, Strategic Deterrence and Nuclear Integration, Headquarters U.S. Air Force, Washington, D.C

SUMMARY OF JOINT ASSIGNMENTS

1. July 1994 - August 1994, air operations officer and Chief Liaison Officer to Headquarters European Command for Operation Support Hope, Stuttgart, Germany, as a lieutenant colonel
2. July 1997 - February 2000, nuclear policy planner and executive assistant to the Deputy Director for Strategy and Policy (J5), Joint Staff, and deputy executive assistant to the Chairman of the Joint Chiefs of Staff, the Pentagon, Washington, D.C., as a lieutenant colonel
3. April 2006 - April 2007, Deputy Commanding General, Combined Forces Command - Afghanistan, and then Combined Security Transition Command - Afghanistan, U.S. Central Command, Kabul, Afghanistan, as a brigadier general

FLIGHT INFORMATION

Rating: Master navigator
Flight hours: 2,500
Aircraft flown: T-37, KC-135A, FB-111A and T-43A

MAJOR AWARDS AND DECORATIONS

Distinguished Service Medal
Defense Superior Service Medal with oak leaf cluster
Legion of Merit with oak leaf cluster
Meritorious Service Medal with three oak leaf clusters
Joint Service Commendation Medal with oak leaf cluster
Air Force Commendation Medal

Joint Service Achievement Medal
Joint Meritorious Unit Award with two oak leaf clusters
Air Force Outstanding Unit Award with three oak leaf clusters
Air Force Organizational Excellence Award with oak leaf cluster
Combat Readiness Medal with oak leaf cluster
Air Force Recognition Ribbon

OTHER ACHIEVEMENTS

2003 General and Mrs. Jerome F. O'Malley Award, U.S. Air Force Wing Commander and Spouse of the Year

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 31, 1978
First Lieutenant May 31, 1980
Captain May 31, 1982
Major March 1, 1989
Lieutenant Colonel June 1, 1994
Colonel July 1, 2000
Brigadier General June 1, 2005
Major General Dec. 3, 2007

(Current as of July 2010)

Statement of Admiral Kirkland Donald
Director, Naval Reactors
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2013 President's Budget Request
Before the
House Armed Service Committee
Subcommittee on Strategic Forces
April 17, 2012

The request for this appropriation is $1.089 billion; an increase of almost one percent over the FY 2012 appropriation. The program directly supports all aspects of the U.S. Navy's nuclear fleet, which encompasses the Navy's submarines and aircraft carriers, over 40 percent of the U.S. Navy's major combatants. Currently, the nuclear fleet is comprised of 54 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. Over 8300 nuclear-trained Navy personnel safely operate the propulsion plants on these ships all over the world, and their consistent forward presence protects our national interests. At any given time, about half of these ships are at sea.

2011 was a successful year for Naval Reactors. The nuclear-powered fleet surpassed 148 million cumulative miles safely steamed, providing the Navy with a consistent forward presence, capable of rapid response to emerging world events. The endurance, forward-presence, and instant readiness enabled by nuclear propulsion plants were on full display during Operation Odyssey Dawn, with deployed submarines launching over half of the initial salvo of cruise missiles, just one of this year's 57 submarine missions of significance to national security. Naval Reactors has also surpassed important milestones in the OHIO Replacement reactor design, including sufficient completion of design and manufacturing development of core materials to support the 2012 core materials decision. In Idaho, the Program loaded its 50th spent fuel dry storage canister, with a third of the Navy's current spent fuel inventory now ready for shipment to a permanent repository. Finally, as highlighted by the commissioning of the USS CALIFORNIA (SSN 781) and the christening of the PCU MISSISSIPPI (SSN 782), VIRGINIA-Class submarines are consistently delivered under-budget and ahead of schedule. Throughout all these significant efforts, Naval Reactors also contributed to the relief in response to the tragic earthquake, tsunami and resultant events at the Fukushima Dai-ichi nuclear power plant in Japan.

Continued safe and reliable Naval nuclear propulsion requires that Naval Reactors maintains the capability to anticipate and respond to small problems before they become larger. The technical base and laboratory infrastructure allows thorough and quick evaluation of technical issues that arise from design, manufacture, operation and maintenance with technically-sound dispositions, ensuring crew and public safety without unnecessarily restricting the important missions of our nuclear powered-ships. Through careful collection and meticulous technical analysis of fleet operational and inspection data, and rigorously engineered designs, as well as prudent maintenance and modernization, the Program maintains a record of over 60 years of safe and effective operations. Uncompromising and timely support of the nuclear fleet continues to be the highest priority for Naval Reactors. This focus will prove even more important as the nuclear fleet, whose oldest ship, USS ENTERPRISE (CVN 65), recently celebrated her 50th birthday, continues to increase its average age. Day-to-day activities include oversight and operation of two laboratories across multiple sites, including a prototype site with two operating reactor plants, and a spent nuclear fuel processing and handling facility. This budget funds all required facilities, maintenance, capital equipment, compliance, and remediation for these facilities. The work at these facilities enables complete lifecycle support for every nuclear-powered warship, from construction through inactivation. Technical work is conducted in areas such as structural mechanics, electrical engineering, nuclear engineering, materials science, reactor servicing, chemistry, and spent fuel management.

In addition to fleet support, Naval Reactors has embarked on important new projects: namely, the refueling overhaul for the S8G Land-Based Prototype reactor, the design of the OHIO Replacement reactor plant, and recapitalization of our naval spent nuclear fuel infrastructure. Each of the projects is critical to fulfillment of the Navy's longer term needs.

The Budget Control Act of 2011 established discretionary caps, which are delaying several of the Administration's nuclear modernization initiatives. Of the three new projects, only the S8G Land-Based Prototype Refueling Overhaul remains on the originally envisioned schedule that was presented to Congress last year. The Prototype reactor plant has served Naval Reactors' needs for research, development, and training since 1978, and the reactor provides a cost-effective testing platform for new technologies and components before they are introduced to the Fleet. Equally important, it provides an essential, hands-on training platform for the fleet's reactor plant operators, every one of whom qualifies on an operating reactor before their assignment to a submarine or aircraft carrier. To continue vital research capabilities, as well as train sufficient operators to man the Fleet, the S8G Land-Based Prototype Refueling Overhaul must begin in 2018. This budget fully funds the FY13 effort required for the upcoming refueling overhaul of the S8G Land-Based Prototype. The new prototype reactor core work will be used to test the manufacturability of new core materials required for the OHIO Replacement submarine.

The OHIO Replacement reactor plant design continues and the FY13 requested amount supports continuing this work to meet the Navy's revised schedule and procurement of reactor plant components in 2019 (to support a 2021 lead-ship procurement). This represents a two-year delay compared to the schedule presented to Congress last year, which the Navy considers the best balance between BCA constraints and operational risk. The current OHIO-Class ballistic missile submarines are reaching the end of their operational life and will begin to retire in 2027. Naval Reactors is designing and developing a life-of-ship core to ensure continuous and credible strategic deterrence, as well as enable substantial cost savings. The planned life-of-ship core will have a longer reactor life than any previous core, and will eliminate the need for a mid-life refueling, enabling the Navy to reduce maintenance requirements by shortening the mid-life overhaul. This increased SSBN operational availability will reduce strategic deterrence submarine procurements by two. Full funding for this program is crucial to support designing, building, and testing of systems for a new design of a nuclear reactor plant on the identified schedule. Completion of this work drives the overall design maturity of the reactor plant, which, as demonstrated by the successful construction of VIRGINIA-Class submarines, is vital to minimizing risk and cost during component procurement and ship construction. The request is sufficient for OHIO Replacement development through FY13 and we are working with DOD to address the out-years.

Finally, the Spent Fuel Handling Recapitalization Project is needed to maintain the capability to manage naval spent nuclear fuel in a cost-effective way that does not impede the refueling of active ships and their return to operations. This project includes receipt, inspection, processing, packaging, and secure dry storage. The existing facility is more than 50 years old, and was never designed for its current primary mission of packaging naval spent nuclear fuel for permanent dry storage. Although the current Expended Core Facility continues to be maintained and operated in a safe and environmentally responsible manner, it no longer efficiently supports the nuclear Fleet. Uninterrupted receipt of naval spent nuclear fuel is vital to the timely refueling and return of warships to full operational status. Due to the fiscal constraints of the Budget Control Act, Naval Reactors is reviewing the schedule for the SFHP and developing a revised profile. Delays past 2020 will require the procurement of additional M-290 shipping containers to store CVN fuel until it can be unloaded at a new facility. These additional containers will be procured using Department of the Navy funds at an estimated cost of $200 million.

United States Navy Biography

Admiral Kirkland H. Donald
Director, Naval Nuclear Propulsion

Originally from Norlina, N.C., Admiral Kirkland Donald graduated from the U.S. Naval Academy in 1975 with a bachelor of science in ocean engineering. He also holds a master's degree in business administration from the University of Phoenix and is a graduate of Harvard University's John F. Kennedy School of Government Senior Executive Fellows Program.

After completing his initial nuclear power and submarine training, he served in USS *Batfish* (SSN 681), USS *Mariano G. Vallejo* (SSBN 658), and USS *Seahorse* (SSN 669).

Donald was Commanding Officer, USS *Key West* (SSN 722), from October 1990 to February 1993. He served as Commander, Submarine Development Squadron 12 from August 1995 to July 1997. From June 2002 to July 2003, he was assigned as Commander, Submarine Group 8; Commander, Submarine Force 6th Fleet (CTF 69); Commander, Submarines Allied Naval Forces South; and Commander, Fleet Ballistic Missile Submarine Force (CTF 164) in Naples, Italy. Most recently, he served as Commander, Naval Submarine Forces; Commander, Submarine Force, U.S. Atlantic Fleet; Commander, Allied Submarine Command; and Commander, Task Forces 84 and 144 in Norfolk, Va.

His shore assignments include the Pacific Fleet Nuclear Propulsion Examining Board and the staff of the Director, Naval Nuclear Propulsion. He also served at the Bureau of Naval Personnel, on the Joint Staff, and as Deputy Chief of Staff for C4I, Resources, Requirements and Assessments, U.S. Pacific Fleet. Donald assumed his current duties as Director, Naval Nuclear Propulsion, on Nov. 5, 2004.

Donald is authorized to wear the Navy Distinguished Service Medal (two awards), Defense Superior Service Medal, Legion of Merit with four gold stars, and the Meritorious Service Medal with one gold star, in addition to several other personal and unit awards.

Updated: 15 March 2011

Statement of Anne Harrington
Deputy Administrator for Defense Nuclear Nonproliferation
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2013 President's Budget Request
Before the
House Armed Services Committee
Subcommittee on Strategic Forces

April 17, 2012

Chairman Turner, Ranking Member Sanchez, and Members of the Subcommittee, thank you for opportunity to submit a statement for the record on the President's Fiscal Year 2013 budget request for the National Nuclear Security Administration's Defense Nuclear Nonproliferation. I will also share with you a brief summary of the successful achievements from the Nuclear Security Summit which concluded in Seoul, South Korea on March 28, 2012.

One of our most important missions at NNSA has been to support the Administration's commitment to secure the most vulnerable nuclear material across the globe in four years. Our accomplishments in securing plutonium and highly enriched uranium around the world have made it significantly more difficult to acquire and traffic the materials required to make an improvised nuclear device, and I am proud to say that we are on track to meet our goals to remove or dispose of 4,353 kilograms of highly enriched uranium and plutonium in foreign countries, and equip approximately 229 buildings containing weapons-usable material with state-of-the-art security upgrades.

The Defense Nuclear Nonproliferation budget request provides the $2.46 billion needed to continue these and other critical nonproliferation and nuclear security efforts. Our continued focus on innovative and ambitious nonproliferation and nuclear security efforts is vital. The threat is not gone, and the consequences of nuclear terrorism and state proliferation would be devastating. Detonation of a nuclear device anywhere in the world would lead to significant loss of life, and overwhelming economic, political, and psychological consequences. We must remain committed to reducing the risk of nuclear terrorism and state-based proliferation.

But there is no silver bullet solution, which is why we will continue to implement a multi-layered strategy to strengthen the security of nuclear material around the world by removing or eliminating it when we can; consolidating and securing it, if elimination is not an option; reducing the civilian use of highly enriched uranium--particularly for research and medical isotope production--where low enriched uranium options exist or can be developed; and maintaining our commitment to detecting and deterring nuclear smuggling. Many of you are familiar with the significant contributions that NNSA's Second Line of Defense program has made to the worldwide effort to combat nuclear trafficking. In light of the constrained budget environment that we find ourselves in, NNSA has initiated a strategic review of the program to evaluate what combinations of capabilities and programs make the most effective contribution to national security.

We will continue to research and develop tools and technologies to detect the proliferation of nuclear materials as well as nuclear detonations. We will provide technical support and leadership to our interagency colleagues during the negotiation and implementation of arms control treaties, as we did with NEW START. We will expand on our ongoing efforts to strengthen the capabilities of our foreign partners to implement international nonproliferation and nuclear security norms, and support the critically important work of the International Atomic Energy Agency. We will continue to play a supporting role in the negotiation of Peaceful Nuclear Cooperation Agreements (so-called 123 Agreements), which are so crucial for achieving our nuclear nonproliferation and trade objectives.

The President's FY13 budget request also keeps focus on our commitment to eliminate U.S. excess weapons materials and supports the Mixed Oxide Fuel Fabrication Facility and Waste Solidification Building at the Savannah River Site in South Carolina. The $569.5 million committed to the MOX program and related activities this year will lead to the permanent elimination of enough plutonium for at least 8,500 nuclear weapons, which will be matched by similar commitments by the Russian Federation. We have eliminated the line item for a Pit Disassembly and Conversion Facility from the MOX program, opting instead for a preferred alternative approach to producing feedstock that is much less costly by utilizing existing facilities at the Savannah River Site and Los Alamos National Laboratory.

The President's proposed budget for FY2013 provides the funding necessary to carry out all of these activities; however, given the current fiscal constraints on all government agencies, we have stepped up our efforts to identify areas where our interagency partners and other nations can help share the costs associated with this important work. I am pleased to report that since Congress granted NNSA programs the ability to accept international contributions in FY2005, we have received nearly $80M from Canada, the United Kingdom, Finland, South Korea, New Zealand, Norway, the Czech Republic, and the Netherlands. In addition, our nuclear and radiological security and Second Line of Defense activities with Russia have moved to a cost sharing basis with Russia assuming a growing share of the installation and sustainability costs of these projects. The full value of cost sharing with our international partners can be difficult to estimate precisely, but the financial, technical and diplomatic resources that they bring to these efforts have enabled and accelerated important nuclear security efforts and saved the U.S. Government millions of dollars over the last several years.

Nowhere is the positive impact of the international collaboration more demonstrated than in the Nuclear Security Summit process. Last month's Nuclear Security Summit in Seoul issued a Communique, supported by 53 Heads of State and Government, as well as representatives of the IAEA and Interpol, all of which unanimously agreed that nuclear terrorism continues to be one of the most challenging threats to international security. Countries not only reported on their very substantial accomplishments since the Washington Nuclear Security Summit in 2010, they pledged additional actions to strengthen the IAEA; securing, accounting for, and consolidating nuclear materials; securing radioactive sources; enhancing the security of materials in transport; combating illicit trafficking; improving nuclear forensics capabilities; fostering a nuclear security culture through education and training; protecting sensitive information and enhancing cyber security measures; and engaging in international cooperation to achieve all of these goals. NNSA has been and will continue to be at the forefront of supporting efforts in all of these areas.

Every country attending the Summit announced its accomplishments in a number of critical areas. Each statement in its own right was significant, but taken together they constitute a tremendous leap forward in the global effort to prevent nuclear terrorism. These achievements would not have been accomplished in such a short amount of time without the high-level attention that President Obama and his counterparts have focused on this issue. Some of the most impressive accomplishments announced at the Summit included: the United States, Mexico, and Canada working together to remove all HEU from Mexico; the United States, Russia, and Ukraine announcing the removal of the final HEU from Ukraine; and the removal of all plutonium from Sweden to the United States. As a result of these shipments, 21 countries have now been cleaned out of all HEU and Plutonium. It took 13 years to remove all HEU from 13 countries prior to the President's April 2009 Prague speech announcing the 4-Year Effort. With the momentum of the Nuclear Security Summit process, 8 additional countries have been cleaned out of HEU and Plutonium, bringing the total to 21 countries.

A key to our efforts to reduce the threat of nuclear terrorism is minimizing the civilian use of HEU. Our agreement with Belgium, France, and the Netherlands to eliminate the use of HEU in medical isotopes production while concurrently assuring the reliable supply of these isotopes to patients in need, makes a meaningful contribution to this effort. The President also announced a previously secret program with Russia and Kazakhstan to remediate vulnerable nuclear material from the former Semipalatinsk Test Site. In addition, there were several key illicit trafficking deliverables, including the creation of counter nuclear smuggling teams in countries such as Jordan and a counter nuclear smuggling center of excellence in Lithuania. Finally, nearly 20 countries also ratified key nuclear security and nuclear terrorism treaties: the Convention on the Physical Protection of Nuclear Materials (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT). There is much more to add, but this hopefully gives you a flavor of the positive and constructive framework that the Nuclear Security Summit process provides.

In conclusion, Mr. Chairman, I want to thank you for the opportunity to provide this statement for the record to the committee on NNSA's contributions to nuclear security. Working in concert with other U.S. government programs and partners around the world, we are making concrete contributions to reducing the risk of nuclear terrorism and building a more secure future. Thank you for the tremendous support that our programs have enjoyed over the years from this Committee and the Congress. I welcome any questions you may have.

Published on *National Nuclear Security Administration* (http://nnsa.energy.gov)

Anne Harrington

Deputy Administrator for Defense Nuclear Nonproliferation

Anne Harrington was sworn in as Deputy Administrator for Defense Nuclear Nonproliferation for the National Nuclear Security Administration in October 2010. Previously, Ms. Harrington was the Director of the U.S. National Academy of Sciences Committee on International Security and Arms Control (CISAC) a position she held from March 2005 to October 2010. While at CISAC, she managed several key studies on a variety of nonproliferation, threat reduction and other nuclear security issues, including: Global Security Engagement: A New Model for Cooperative Threat Reduction (2009); Future of the Nuclear Security Environment in 2015 (2009); Internationalization of the Nuclear Fuel Cycle: Goals, Strategies, and Challenges (2008, joint report with Russian Academy of Sciences); and English-Chinese Chinese-English Nuclear Security Glossary (2008, produced jointly with the Chinese Scientists Group for Arms Control).

Ms. Harrington served for 15 years in the U.S. Department of State, where she was Acting Director and Deputy Director of the Office of Proliferation Threat Reduction and a senior U.S. government expert on nonproliferation and cooperative threat reduction. She has dedicated much of her government career to developing policy and implementing programs aimed at preventing the proliferation of WMD and missile expertise in Russia and Eurasia, and also launched similar efforts Iraq and Libya.

Her State Department assignments include serving as the U.S. senior coordinator for efforts to redirect former Soviet WMD/missile experts 1993–1998. She was based in Moscow from 1991 to 1993, where she was the Senior Advisor to the U.S. Delegation to the International Science and Technology Center (ISTC) Preparatory Committee and Science Analyst at the U.S. Embassy in Moscow. She was instrumental in negotiating the agreements that established the ISTC and the Science and Technology Center in Ukraine (STCU), and the agreement between the United States and Kazakhstan for the secure storage of spent fuel and safe shutdown of the Aktau BN-350 breeder reactor.

She was selected to attend the National Defense University's National War College in 2002–2003, where she was also a research fellow and authored the paper, "Reducing the Threat from Biological Weapons: Perspectives on U.S. Policy." Ms. Harrington has been author or co-author on a number of papers on countering biological threats.

Ms. Harrington graduated with a bachelor's of arts degree from St. Lawrence University, an M.A. from the University of Michigan, and an M.S. from the National Defense University National War College. She has two children, Meredith and Owen Lynch.

Source URL (retrieved on *Apr 13, 2012*): http://nnsa.energy.gov/aboutus/ourleadership/harringtonbio

Statement of Dr. Paul J. Hommert
President and Director
Sandia National Laboratories

Committee on Armed Services
Subcommittee on Strategic Forces
United States House of Representatives
April 17, 2012

Introduction

Chairman Turner, Ranking Member Sanchez, and distinguished members of the House Armed Services Subcommittee on Strategic Forces, thank you for the opportunity to testify. I am Paul Hommert, President and Director of Sandia National Laboratories. Sandia is a multiprogram national security laboratory owned by the United States Government and operated by Sandia Corporation[1] for the National Nuclear Security Administration (NNSA).

Sandia is one of the three NNSA laboratories with responsibility for stockpile stewardship and annual assessment of the nation's nuclear weapons. Within the U.S. nuclear weapons enterprise, Sandia is uniquely responsible for the systems engineering and integration of the nuclear weapons in the stockpile and for the design, development, qualification, sustainment, and retirement of nonnuclear components of nuclear weapons. While nuclear weapons represent Sandia's core mission, the science, technology, and engineering capabilities required to support this mission position us to support other aspects of national security as well. Indeed, there is natural, increasingly significant synergy between our core mission and our broader national security work. This broader role involves research and development in nonproliferation, counterterrorism, energy security, defense, and homeland security.

My statement today will provide an update since my testimony of March 30, 2011, before the Senate Armed Services Subcommittee on Strategic Forces. Starting from an overall perspective of the nuclear weapons program and the challenges facing us since the end of the Cold War, I will refer to the following major issues: (1) modernization programs with emphasis on the B61 Life Extension Program (LEP), (2) U.S. nuclear stockpile assessment, (3) status of the capability base needed to support our mission, (4) nonproliferation, (5) broader national security work, (6) workforce, and (7) governance. These issues will be viewed within the context of the Administration's request to Congress for the FY 2013 budget and of the appropriated FY 2012 budget.

Major Points of This Testimony

1. For the nuclear weapons enterprise to meet the B61 LEP scope and schedule as decided by the Nuclear Weapons Council in December 2011, it is essential that the funding levels in the President's *FY 2013 Budget Request to Congress* be authorized and appropriated. In addition,

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[1] Sandia Corporation is a subsidiary of the Lockheed Martin Corporation under Department of Energy prime contract no. DE-AC04-94AL85000.

funding disruptions that could result from a FY 2013 continuing resolution would have an almost immediate impact on our ability to meet the FY 2019 first production unit schedule for the LEP. Therefore, if the schedule is to be met, plans for uninterrupted execution under a possible continuing resolution will be needed.

2. The schedule and scope of the B61 LEP relate to strong technical drivers, which are discussed in my September 2011 annual stockpile assessment letter. I recommend that members read the letter, and I welcome the opportunity to discuss it in an appropriate venue.
3. Beyond the B61 LEP, further planning is needed to determine the details of the modernization activities consistent with the 2010 *Nuclear Posture Review* framework. The planning update needs to reflect the current plutonium strategy, improved understanding of modernization costs, and technical state of the stockpile; it also needs to be consistent with overall fiscal constraints. We are supporting Department of Defense (DoD) and NNSA planning efforts currently underway.
4. I am encouraged by the recent discussion concerning governance of the NNSA laboratories. In my view, reinvigorating the government-owned and contractor-operated model, which implies government oversight at the strategic rather than transactional level, offers the potential for improvements in operational performance, contractor accountability, and cost-effectiveness at the laboratories, with attendant cost savings on the federal side.

Perspective of the Nuclear Weapons Program

It is my view that we have entered a new era for the U.S. nuclear deterrent. The nuclear weapons enterprise must address for the first time the following imperatives: modernizing the nuclear weapons stockpile, which depends critically on the use and continued advancement of the tools of stewardship, upgrading production infrastructure in a targeted manner, and maintaining the current stockpile through a modernization transition period. Such an environment creates funding demands not seen in recent decades, and it will require risk-based prioritization of the program, along with continued emphasis on strong program management and cost-effectiveness.

The current nuclear stockpile was largely developed, produced, and tested in the 1970s and 1980s, during the Cold War. It was the time of the arms race, as new nuclear systems were frequently being developed and fielded.

After the 1992 moratorium on underground testing, the nuclear weapons program went into its next phase, science-based stockpile stewardship. The advanced tools and deeper scientific understanding we developed in that period have been applied to our annual assessment of the stockpile, to stockpile maintenance activities such as replacement of limited-life components, and to the qualification of the W76-1 LEP. Science-based stockpile stewardship has been successful in generating the required scientific competencies and resources and attracting talented staff, but it was not accompanied by a broad-based effort to modernize the nuclear arsenal.

Now, some 20 years after the end of the Cold War, we have a stockpile that has become significantly smaller and older. Considering the average age (27 years) of the stockpile and our insights into the stockpile, we have clearly reached a point at which we must conduct full-scale engineering development and related production activities to modernize the nuclear arsenal. This work can be accomplished only by relying on the tools of stewardship and a revitalized, appropriately sized production capability. Let me restate that, in my view, the nuclear weapons enterprise has never before faced the combined need to modernize the stockpile, address production infrastructure, and further stewardship while sustaining major elements of the current stockpile.

The new era of the nuclear deterrent is guided by the strategic framework for U.S. nuclear weapons policy outlined in the 2010 *Nuclear Posture Review* and associated documents, such as the *FY 2012 Stockpile Stewardship and Management Plan*. However, in the past year, several factors have required further detailed planning to confidently establish the basis for sustaining and modernizing our nuclear deterrent. These factors include changes in the plutonium strategy, a deeper understanding of modernization costs, and the technical state of the stockpile. As we move forward, we must have a clear understanding and broad agreement about the vision for our stockpile 20 years from now. That vision must be robust in the face of current and future treaty obligations, evolving policy direction, stockpile technical realities, our infrastructure capabilities, and fiscal constraints. I believe such a vision is emerging, and we are actively supporting the DoD and NNSA as they work through this planning. Simultaneously, we are ensuring that Sandia is positioned to fulfill its responsibilities in support of the nation's nuclear deterrent. We are confident in our ability to do so.

Budget Overview

I am pleased to report that the appropriated FY 2012 budget will allow Sandia to both complete the 6.2A cost study for the B61 LEP and initiate full-scale engineering development at a pace consistent with a FY 2019 first production unit. In this context, I wish to extend my thanks to the key authorization and appropriation committees of Congress for having approved reprogramming of FY 2012 funds to achieve the full budget level required to complete our work. Without reprogramming, staffing would have been impacted at a number of nuclear weapons enterprise sites, including Sandia. In my view, FY 2013 is critical to sustaining modernization at the schedule and scope required by recent Nuclear Weapons Council decisions and the overall framework of the *Nuclear Posture Review*. Within this section, I will focus on key elements required for Sandia to execute its near- and long-term responsibilities and the manner in which the *FY 2013 Budget Request to Congress* reflects those requirements.

The B61 Life Extension Program

Sandia supports the Administration's *FY 2013 Budget Request to Congress*, which addresses funding for the B61 life extension. If fully appropriated, the FY 2013 site splits for Sandia provide the necessary budget growth that permits Sandia to meet program requirements. FY 2013 is crucial for the B61 as all component designs must be brought to a level that ensures successful system qualification on the path to FY 2019. We will complete detailed cost estimates for the required scope of the B61 program in June of this year; however, from work we completed in 2011, we know with high confidence that the level of funding included in the FY 2013 budget request is commensurate with the technology maturation and integration that must be conducted in FY 2013 in order to meet the required schedule.

Last year I testified that the B61 LEP would complete the cost estimation for the full-scope B61 LEP in FY 2011. Indeed, a detailed cost study was completed on schedule that met all the DoD and NNSA objective requirements. As it became clear that the cost of meeting all objective requirements with delivery in FY 2017 would exceed near-term resource availability, the B61 LEP system design team was directed to examine reduced-scope options, which meet a renegotiated set of threshold requirements that would represent acceptable risk for the weapon system going forward. This work led to the scope accepted by the Nuclear Weapons Council in December 2011, which reduces the cost of the program while ensuring a modernized B61 that meets military threshold requirements and addresses technical concerns expressed in my annual stockpile assessment letter from

September 2011. While I strongly support this scope, it is important to recognize that the new program does have increased risk resulting from the partial reuse of components and the loss of schedule margin. The schedule is now driven tightly by technical realities in the current system. The reuse of certain components further heightens the importance of a robust surveillance program.

I cannot emphasize enough the significance of timely funding authorization and appropriation. Consistent, predictable multiyear funding is vital for the FY 2019 B61-12 first production unit as it allows for the seamless progression of development, qualification, and production and for development of the necessary workforce. Plans for uninterrupted execution under a possible continuing resolution in FY 2013 will be needed if the schedule is to be met. And the success of the B61 LEP also requires the necessary support for the nuclear explosive package agency (Los Alamos National Laboratory) and the production complex.

The B61 LEP represents the largest nuclear weapon product development effort that the nuclear weapons complex has undertaken since the 1970s, an effort roughly three times that of the W76 Trident II SLBM warhead LEP, which is now in production. We recognize that the funding levels required at Sandia for this program are significant. Therefore, we are focused on efforts to reduce cost over the life of the program and to manage with full transparency and commitment to program rigor. Examples of our efforts include (1) actions we have taken to reduce, by over $1 billion, labor costs associated with Laboratory-wide pension and medical care over the coming decade, (2) maximum leverage we have sought from other weapon development efforts and from the work we do for other federal agencies, and (3) consistent use of the tools of stewardship to reduce the costs of weapon qualification by comparison with historical efforts. Throughout this program, we will continue to seek further cost efficiencies. For example, the governance reform efforts being considered also afford the opportunity for further savings.

My last comment on the B61 program has to do with staffing. For this life extension, we have now approximately 30 product realization teams working to complete the Weapon Development and Cost Report and being prepared to initiate full-scale engineering design of components and subsystems upon entry into Phase 6.3. We aggressively staffed this program in FY 2011 to accomplish our objectives on the current schedule. In July 2010, we had a core of approximately 80 staff on the B61 project. By the end of FY 2011, we had staffed to more than 500. This group includes experienced weapon designers, individuals with design and program management experience from other large non-nuclear-weapon programs at Sandia, and many new professionals who represent the future intellectual base of our deterrent. It has been a challenge to assemble this team, but we have done so. Major instabilities in funding will make it difficult to keep this team stable and will lead to amplified schedule and cost impacts if we need to periodically reassemble the team.

Further Modernization Efforts

The B61 LEP is one in a series of programs with timelines extending to 2035 that have been documented in the *FY 2012 Stockpile Stewardship and Management Plan*. Among them are the W88 Alteration (ALT), the modernization of elements of our ballistic missile capabilities, and a possible weapon system associated with long-range stand-off delivery vehicles.

Sandia is pursuing work on the W88 ALT, which involves replacing the Arming, Fuzing, and Firing (AF&F) system and other nonnuclear components. The W88 ALT is scheduled for first production unit in December 2018, driven by the overall Navy program and schedule, components reaching their end of life, the need for additional surveillance quantities, and alignment with the common fuze developed for the Air Force for the W87.

The *Nuclear Posture Review* recommended "initiating a study of LEP options for the W78 ICBM warhead, including the possibility of using the resulting warhead also on SLBMs to reduce the number of warhead types" (p. xiv). A larger vision of an interoperable set of ballistic warheads has matured since the release of the *Nuclear Posture Review* two years ago; this approach will support a more flexible, responsive, resilient stockpile for an uncertain future. Indeed, the Phase 6.1 concept assessment study for this modernization effort is nearing completion, and Sandia provided the warhead systems engineering and integration. We are fully leveraging the work we have done over the past several years on modular warhead architectures and adaptable nonnuclear components, including a recent study focused on a modular AF&F design.

By being adaptable to several weapon systems, our modular AF&F approach leads to significant cost savings. Using an envelope of the requirements for the W78, W88, and W87, our study concluded that the modular AF&F approach is technically feasible. While the modular AF&F cannot be identical in each weapon system because the nuclear explosive package is different, it can be designed to be adaptable, with many common components and common technologies. In each life extension, we will also make appropriate improvements in safety and security, which are enabled in part by miniaturization of electronics. Savings in weight and volume, at a premium in reentry systems, can be used for those additional safety and security features. The results of the W78 LEP Phase 6.1 concept assessment study are planned for briefing to the Nuclear Weapons Council Standing and Safety Committee later this year.

Stockpile Surveillance and Assessment

Stockpile surveillance and assessment play a crucial role in assuring the nuclear deterrent. Findings from conducting this program provide us with knowledge about the safety, security, and reliability of the stockpile, provide the technical basis for our annual stockpile assessment reported to the President of the United States through the annual assessment process, and inform decisions about required elements of the LEPs and their timelines.

Multiple drivers heighten the importance of the surveillance program. Among them are the following: an unprecedented age of the stockpile, which includes many subsystems that were not originally designed for extended life; smaller stockpile numbers; and for at least the next twenty years, surveillance of a stockpile that will contain simultaneously both our oldest weapons and life-extended weapons, which must be examined for possible birth defects and for further aging of reused components.

If fully appropriated, the FY 2013 site splits for Sandia provide the resources to meet our highest priority surveillance needs, which include conducting planned system tests—both flight and laboratory tests—but they limit the pace at which we can implement additional component tests and develop new diagnostics needed to improve our predictive capabilities. These predictive capabilities, which provide a better understanding of margins, uncertainties, and trends, are needed to ensure lead times necessary to respond to aging issues that would have the potential to reduce stockpile safety, security, or reliability. To minimize the risk to the stockpile, given the realities of the current fiscal environment, we are implementing a risk-based prioritization of our surveillance activities. Success in this important area will require continued strong budget support in the out-years.

Essential Infrastructure and Capabilities

Sandia's capabilities are essential to its full life cycle responsibilities for the stockpile: from exploratory concept definition to design, development, qualification, testing, and ultimately to ongoing stockpile surveillance and assessment. Let me point out a few examples.

The NNSA complex transformation plan designated Sandia as the Major Environmental Test Center of Excellence for the entire nuclear weapons program. Our facilities and equipment in this area are extensive: (1) twenty test facilities at Sandia; (2) the Tonopah Test Range in Nevada; and (3) the Weapon Evaluation Test Laboratory in Amarillo, Texas. We use environmental test capabilities to simulate the full range of mechanical, thermal, electrical, explosive, and radiation environments that nuclear weapons must withstand, including those associated with postulated accident scenarios. In addition to these experimental and test facilities, Sandia's high-performance computing capabilities are vital tools for our mission responsibilities in stockpile surveillance, certification, and qualification, and they have proved to be indispensable in our broader national security work.

I am very pleased that funding for the completion of the Test Capabilities Revitalization Phase 2 is included in the Administration's FY 2013 budget request for weapons activities. This funding will enable us to renovate our suite of mechanical environment test facilities, which are essential to support the design and qualification of the B61 life extension and subsequent life extensions.

The Administration's FY 2013 budget request also includes funding for the initial Tonopah Test Range upgrades in recognition of this facility being an essential mission requirement. However, sustained investment over multiple years is necessary to complete the required scope of the upgrades. Development flight tests will be conducted at the Tonopah Test Range for the B61 life extension.

I am equally pleased that the new budget request addresses the beginning of a recapitalization program for our silicon fabrication facility, the requirements for which I addressed in my testimony last year. I will restate that Sandia stewards for the nuclear weapons program, as well as for the Department of Energy's (DOE's) nonproliferation payloads, the microelectronics research and fabrication facility, where we design and fabricate an array of unique microelectronics, specialty optical components, and microelectromechanical system devices. The FY 2013 budget request includes funding for the first year of a 4-year program that will recapitalize the tooling and equipment in our silicon fabrication facility, much of which dates back about 15 years in an industry where technology changes almost every 2 years. For completion of the program, commitment to multiyear funding is required. Recapitalization will reduce the risk for delivering the B61 LEP and ensure production of the radiation-hardened components required by the W88 ALT and all future reentry system LEPs. As we go forward on modernization, our microelectronics fabrication facilities, which form the basis of our trusted foundry, will be critical to ensuring the integrity of our supply chain.

Nonproliferation

Sandia's portfolio of nonproliferation activities contains a full array of programs aimed at combating the proliferation of weapons of mass destruction. Working collaboratively with Los Alamos and Lawrence Livermore national laboratories and several other DOE laboratories, we are

- developing technologies to "convert, remove, and protect" nuclear and radiological materials that could be used in nuclear and radiological weapons,

- conducting international work for material protection,
- increasing effectiveness in large-scale field experimentation for nonproliferation test monitoring and arms control,
- ensuring that the on-orbit satellite program meets current requirements and adapts to future monitoring challenges,
- developing ground-based systems for more effective seismic monitoring;
- enabling other countries to develop nuclear security centers of excellence, and
- conducting international work in support of cooperative threat reduction programs.

In addition to working with other laboratories, we are engaging globally with international partners in more than 100 countries to reduce the threat of proliferation.

Our primary customers for this work are the NNSA, Department of State, and DoD. As a general comment, I will state that nonproliferation funding has shown stability at Sandia. The Administration's *FY 2013 Budget Request to Congress* continues that trend, with budget increases in certain areas and reductions in others. I am pleased to see balanced increases both in the technologies that respond to immediate national security needs and in the R&D necessary to sustain the flexibility to meet future national security requirements. In particular, the long lead time for satellite monitoring systems requires a sustained commitment to leading-edge R&D. This budget demonstrates that commitment and will enable the national labs to attract "the best and the brightest," who are eager to participate in exciting R&D projects with an enduring impact on U.S. and global security.

Synergy between Our Nuclear Weapons Mission and Broader National Security Work

Today's national security challenges are highly diverse. The NNSA laboratories are contributing solutions to the complex national security challenges. Indeed, as mentioned in the *FY 2011 Stockpile Stewardship and Management Plan Summary*, "while NNSA nuclear weapons activities are clearly focused on the strategic deterrence aspects of the NNSA mission, they also inform and support with critical capabilities other aspects of national security" (p. 7). In turn, to sustain and sharpen these competencies, Sandia relies on its broader national security work. The symbiotic relationship between the nuclear weapon mission and broader national security missions prevents insularity and creates a challenging, vigorous scientific and engineering environment that attracts and retains the new talent that we need. Such an environment is essential to succeed against the challenges we now face. The following example highlights the way in which this symbiotic relationship works.

Sandia has led the development of real-time processing and high performance-to-volume ratio technologies for synthetic aperture radar (SAR). Both technologies were made possible by our extensive design and development work for radars for nuclear weapon fuzing. The technologies have been leveraged and are currently used by the DoD. The extensive SAR work has sharpened our radar design competencies and kept Sandia aligned with advances in radar technology, such as radio-frequency integrated circuits. We are now applying these modern technologies to the design of the replacement radar for the B61 LEP and the W88 ALT.

This symbiotic relationship enables leveraging not only capabilities and technologies, but also engineering practices and processes. One of these areas with direct application across business areas and customers is cost management. A new cost management process was developed and successfully implemented during our work on fuze development for the U.S. Navy. Once work was delivered within the Navy's cost targets, many of the staff transitioned to work on the large satellite programs, where additional processes were developed for cost and change control. Once again, after delivery of expected results, many of those same staff transitioned onto NNSA's current LEPs, including the B61 LEP. This synergistic rotation of staff across business areas and the lessons learned from a diverse set of customers and programs have created an environment of cost control and provided a set of cost management processes and practices that are now being implemented on NNSA's current programs. In a climate of fiscal responsibility, Sandia is finding innovative solutions to control cost.

Today it is no longer imaginable that the laboratories could deliver consistently on the commitments to the nuclear weapons program without the synergistic interagency work that attracts top talent, hones our skills, and provides stability through the nuclear weapons program cycles. Government commitment for the broad national security work of the laboratories is essential for the United States to ensure the preeminence of our nuclear weapons and to enable multidisciplinary technical solutions to other complex and high-risk national security challenges.

Workforce

Our talented people are our most fundamental capability. Given the scope and nature of our work, it is mandatory to continue attracting, retaining, and training a highly capable workforce committed to "exceptional service in the national interest." To do so, we must (1) ensure that our work is aligned with the national purpose; (2) create a climate of innovation and creativity that inspires our workforce; and (3) create a balanced work environment that is both responsive to the fiscal realities of our times and attractive to the talented staff we need in the future.

At Sandia, we have been proactive about hiring new staff into the weapons program, as experienced staff retired. The modernization program provides opportunities for the new technical staff to work closely with our experienced designers: from advanced concept development to component design and qualification, and ultimately to the production and fielding of nuclear weapon systems. Since the beginning of FY 2010, we have hired approximately 300 outstanding advanced-degree scientists and engineers directly into the weapons program as we execute modernization. Of these, well over one-half are essentially new graduates anxious to begin their careers working on the nation's nuclear deterrent. It is very important that we provide individuals such as these with an environment where they can undertake the multiyear learning it takes to technically steward the nation's nuclear stockpile now and into the future. Indeed, in the end, the nation's deterrent rests upon the strength of our people. We have a new generation of scientists and engineers prepared to take on that challenge now that we have entered the modernization era, but we must strive to provide the stability, focus, and national commitment that will enable their success.

As I testified last year before the Senate Armed Services Subcommittee on Strategic Forces and as I stated above, fiscal realities have forced us to reduce costs by addressing the funding liabilities in our pension program, restructuring the healthcare benefits, and simplifying internal processes. All these actions were necessary, but they can go no further without compromising our ability to attract and retain.

Governance

Finally, I would like to state that I am much encouraged by the recent broad discussion around NNSA's oversight of the national security laboratories. Future improvements, as recommended by the National Academy of Sciences study "Observations on NNSA's Management and Oversight of the Nuclear Security Enterprise" will allow us to reinvest needed resources back into the mission. A strategic oversight model is needed, which will bring to the forefront the need for such governance principles as mission clarity, commitment to using the robust construct of federally funded research and development centers, and commitment to the full use of the government-owned and contractor-operated model.

We understand that effective government oversight of our operations is essential. However, I am concerned that the magnitude and detailed level of our current oversight model can impede our efforts to continually improve our safety, security, environmental, and cost performance. It is also not evident that the oversight model under which the NNSA laboratories operate is comparable to that of other federally funded entities engaged in similar work. I encourage the Administration and Congress to consider improvements in this area.

Conclusions

As stated in the 2010 *Nuclear Posture Review*, "as long as nuclear weapons exist, the United States will maintain a safe, secure, and effective nuclear arsenal" (p. iii). Having embarked on the new era of the nuclear deterrent, we are guided by the strategic framework for U.S. nuclear weapons policy outlined in the 2010 *Nuclear Posture Review* and associated documents, such as the *FY 2012 Stockpile Stewardship and Management Plan.* However, in the past year, several factors have required further detailed planning to confidently establish the basis for sustaining and modernizing our nuclear deterrent. Among these factors are changes in the plutonium strategy, a deeper understanding of modernization costs, and the technical state of the stockpile. As we move forward, we must have a clear understanding and broad agreement about the vision for our stockpile 20 years into the future. I believe such a vision is emerging, and we are actively supporting the DoD and NNSA in their planning efforts. Simultaneously, we are ensuring that Sandia is positioned to fulfill its responsibilities in support of the nation's nuclear deterrent. We are confident in our ability to do so.

Sandia supports the Administration's *FY 2013 Budget Request to Congress.* Seamless progression of development, qualification, and production on the B61 LEP requires funds appropriated in a timely manner in FY 2013 and all subsequent years to meet the goal of a first production unit in FY 2019. Our commitment to the demanding and solemn responsibility for stockpile modernization, stewardship, and annual assessment is unwavering. It also comes with an obligation to be second to none in science and engineering and to steward the nation's resources efficiently. Sandia is committed to fulfilling its service to the nation with excellence and judicious cost management. And the fact that the three national security laboratory directors were invited to submit their written statements today is a clear indication of the leadership role of Congress in authorizing a sound path forward for U.S. nuclear deterrence.

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BIOGRAPHY

Dr. Paul Hommert

President and Laboratories Director
Sandia National Laboratories

Dr. Paul Hommert is the director of Sandia National Laboratories and president of Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, which operates Sandia for the U.S. Department of Energy's National Nuclear Security Administration. Sandia has principal sites in Albuquerque, N.M., and Livermore, Calif., an annual budget of $2.4 billion, and approximately 8,900 employees.

Dr. Hommert began his career with Sandia in 1976 and progressed from being technical staff to holding positions of increased responsibility in a broad range of programs and management assignments. He initially led programs supporting energy research, and from the mid to late 1990s, he was director of engineering sciences.

From 2000 to 2003, Dr. Hommert was the director of Research and Applied Science at the Atomic Weapons Establishment in the United Kingdom, where he led the science and engineering organization responsible for the United Kingdom's nuclear deterrent.

From 2003 to 2006, Dr. Hommert led the Applied Physics Division at Los Alamos National Laboratory. The division was responsible for nuclear weapon design and assessment, weapon performance code development, and weapon science support.

In 2006, Dr. Hommert returned to Sandia to become vice president of Sandia's California site, a position he held until 2009. In 2009, Dr. Hommert returned to Sandia's main site in Albuquerque, where he became executive vice president and deputy Laboratories director for the Nuclear Weapons Program.

Dr. Hommert earned a BS degree cum laude in mechanical engineering from Rensselaer Polytechnic Institute and MS and PhD degrees in mechanical engineering from Purdue University. He received an Outstanding Alumnus Award for Professional Excellence in 2003 from Purdue's School of Mechanical Engineering and a Distinguished Engineering Alumni Award in 2010 from Purdue's College of Engineering.

U.S. DEPARTMENT OF ENERGY NNSA

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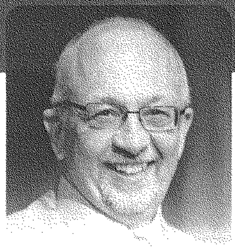

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Testimony of Dr. Charles F. McMillan
Laboratory Director
Los Alamos National Laboratory
before the
House Committee on Armed Services
Subcommittee on Strategic Forces
April 17, 2012

Chairman Turner, Ranking Member Sanchez, and Members of the Committee, thank you for the opportunity to provide a statement for the record.

I am Dr. Charles McMillan, Director of Los Alamos National Laboratory (LANL). My 29-year commitment to America's nuclear weapons program encompasses over two decades of service at Lawrence Livermore National Laboratory (LLNL) and six years at Los Alamos. Following the moratorium on nuclear testing, I participated in the discussions that helped establish Stockpile Stewardship.

Since I assumed leadership at Los Alamos almost a year ago, it has become clear that our nation faces a difficult budget situation, and hard choices must be made. I am proud of the way that the men and women of Los Alamos have played their role in helping to meet these challenges with professionalism and innovation. Through difficult times, they are maintaining a focus that is delivering on the Laboratory's mission. I look forward to working with you as we continue delivering national security science in both the present and the future by making challenging investment decisions-- while keeping faith with a workforce that has demonstrated career-long dedication to the service of our nation.

I continue to believe that the direction laid out in the Nuclear Posture Review and the 1251 Report provides an appropriate and technically sound course. These documents outline a consistent plan that, if implemented, would do the work necessary to support the nation's stockpile through modernization of our nuclear infrastructure and a warhead life extension program (LEP).

Now, because of changes in budget and policy priorities, I am concerned that we do not yet have a clear path forward for meeting all of our commitments to the stockpile.

NNSA governance will play a key role in determining both our efficiency and effectiveness as we address looming mission and budget challenges. In my view, a strong partnership between NNSA and the laboratories, building on the full opportunities afforded by our status as Federally Funded Research and Development Centers (FFRDC), can serve to reestablish the trust that has been a source of solutions in previous challenges.

Governance

The National Academy of Sciences (NAS) report on oversight of the NNSA labs is the latest in a series of reports that has highlighted governance issues for the laboratories: governance that is characterized by a lack of trust, burdensome oversight, and structural flaws. The issues they identified in their report ring true in my experience at the Laboratory.

> "An **erosion of trust** on both sides of the relationship shapes the oversight and operation of the laboratories. This in turn has resulted in **an excessive reliance on operational formality** in important aspects of Laboratory operations, including the conduct of science and engineering…" (NAS report, page 23, emphasis added)

In my view, we have become so focused on operational formality that we risk losing sight of the reasons why the Government-Owned, Contractor-Operated (GOCO) business arrangements were created in the first place. Our common objective is to safely maintain the stockpile using best business practices; operational formality is a means to that end. As the NAS report states, this formality can be a mismatch when applied to creative activities such as science and engineering (report, page 24).

I agree with the report's statements on oversight:

> "…the NNSA, Congress, and top management of the Laboratories recognize that safety and security systems at the Laboratories have been strengthened to the point where they no longer need special attention. **NNSA and Laboratory management should explore ways by which the administrative, safety, and security costs can be reduced, so that they not impose an excessive burden on essential S&E activities**." (NAS recommendation 5-1, page 31, emphasis added)

While NNSA had an auspicious beginning, the promise of semi-autonomy has not yet been fulfilled. Duplication and overlap remain between DOE and NNSA regulations and guidance. As an example, the DOE Office of Health, Safety, and Security (HSS) still plays a significant role in NNSA-- despite NNSA having its own regulations and guidance.

Structural issues continue to be a challenge for NNSA:

> "The 2001 Foster Panel report reiterated the points it made in its previous report, emphasizing that the Secretary of Energy must remove the unnecessary duplication of staff in such areas as security, environmental oversight, safety, and resource management." (NAS report, page 51)

The weapons laboratories are FFRDCs that serve as trusted, independent advisers to the government on complex technical issues-- foremost among these being nuclear weapons. For much of the last decade, I have seen a trend within NNSA toward treating the laboratories more like traditional contractors rather than fully employing the capabilities they offer the government through the special FFRDC relationship (FAR 35.017).

A maturing model between the labs and NNSA would include the ability to work within a framework to accomplish goals established by policies set by Congress and the Administration. Changing the type of oversight from transactional to strategic can lead to a smaller bureaucracy, and thus reduce the size of the infrastructure needed to respond to that bureaucracy.

In the last few months, the NNSA leadership has begun to reengage the lab directors in substantive dialogue on program priorities. This is a first step toward reestablishing the type of trust that was necessary to create the stewardship program. Many steps remain if we are to meet the challenge of the next decade: modernizing the stockpile at a pace that exceeds our past experience.

There are examples of increasing burden and in other cases where there is a glimmer of hope. I mention two of the latter.

- The Office of Defense Nuclear Security (DNS) has worked to balance the need for robust security with the reality of shrinking federal security budgets. The DNS engages individual sites to understand programmatic needs and then develops a solid approach that allows work to be accomplished within a well-defined risk envelope.

- In recent months, we have worked with our colleagues at the Los Alamos Site Office to develop a risk-based framework for evaluating computer system security and streamlining documentation required to operate these systems. This framework may reduce a bookshelf of documentation to a single binder.

While these examples illustrate positive steps to reduce administrative costs, they remain the exception in a system that has become moribund over many years. Studies such as those cited above have examined structural options for NNSA; all have merit, none are perfect. Whichever path we adopt for the future governance of the laboratories, it is essential that all relevant branches of government are aligned to ensure its success.

Nuclear Infrastructure

The existing Chemistry and Metallurgy Research (CMR) facility at Los Alamos is 60 years old, sits on a seismic fault, and, as the Congressional Commission on the Strategic Posture of the United States said in 2009, "is already well past the end of its planned life." The facility is unable to meet the high-volume analysis needed to meet the Department of Defense (DoD) expectation of 50 to 80 newly manufactured pits per year. Three wings of CMR's six have been closed because of their location over the fault and to reduce risk. At the direction of NNSA, we are preparing to retire the facility in 2019.

The decision to defer construction of the Chemistry and Metallurgy Research Replacement-Nuclear Facility (CMRR-NF) leaves the United States with no known capability to make 50 to 80 newly-produced pits on the timescales planned for stockpile modernization. This will affect our path forward on the W78 LEP.

Let me be very clear: CMRR-NF is not a manufacturing facility for pits. It fulfills a critical mission in supporting the analytical chemistry and metallurgy needed to certify that the plutonium used in the stockpile meets basic material requirements. The ability at CMRR-NF to quickly analyze and characterize special nuclear materials—to know where they were made, their purity, and their chemical and mechanical properties—also underpins our work for the nation in non-proliferation, counter-terrorism, and treaty verification missions. Pit production occurs and will continue in Building PF-4 at Los Alamos. CMRR-NF was designed to provide needed capacity for materials characterization, waste staging and shipment, non-destructive assay, and vault storage. In the absence of CMRR-NF, the limited floor space in PF-4 must be used to address these functions, albeit at reduced levels.

At the direction of NNSA, we are in the process of completing a 60-day analysis of existing plutonium capabilities within the Radiation Laboratory Utility Office Building (RLUOB) at Los Alamos, Superblock at Livermore, and other sites. Because of our limited plutonium infrastructure, investments that are not in the current plan will be required to produce even 20 to 30 pits per year using all of these facilities. In this study, LANL is examining accelerating the removal of material from the vault in PF-4, expanding the capability of RLUOB, and constructing a system to transport materials between PF-4 and RLUOB. The not-yet-budgeted costs associated with these changes are expected to extend over five to eight years.

Pit Reuse

Pit reuse has been suggested as a way to bridge the shortfall in newly-produced pits caused by delaying CMRR-NF construction. The nation has pits that are not needed in current systems. These are candidates for use in a modernized stockpile. While I am cautiously optimistic that some of these pits can be reused, two important issues must be addressed before certification for stockpile use:

- First, continued progress in understanding the effects of pit aging.
- Second, the system modifications necessary to ensure that pits designed for use with conventional explosives can be reused in modern, insensitive high explosive systems.

Both are challenging scientific problems.

In 2006, the JASON issued a report on plutonium aging based on studies conducted by LANL and LLNL. In a letter responding to this report to then-chairman John Warner of the Senate Armed Services Committee, NNSA said that it "is imperative that we continue to assess plutonium aging through vigilant surveillance and scientific evaluation, since the plutonium-aging database only extends to approximately 48 years for naturally aged material and 60 years for the accelerated aged material. The primary performance database from underground testing is even more limited." Unfortunately, since this letter was written, work in this area has been constrained by funding; much work remains to be done.

The pits that are available for reuse were not designed to provide the safety of a modernized stockpile using insensitive high explosives. While we have concepts for using these pits in a modernized stockpile, the extensive work required to convert these concepts to systems that could be certified is yet to be done.

Consider the following analogy: using old pits in a modernized stockpile would be like taking an engine from a 1965 Mustang and installing it in a 2012 model while continuing to meet 2012 emission requirements. It might be possible, but not without a lot of work, not to mention impacts to the other parts under the hood. Furthermore, certifying that it would work without ever driving the car would be challenging.

Life Extension Programs

As our systems age, LEPs have become necessary to continue confidence in the safety, security, and reliability of the stockpile. It is in LEPs that we see a return on investments made in long term science.

I am pleased to report that Los Alamos Life Extension activities on the W76-1 continue smoothly at the plants with Los Alamos providing technical support as needed. We will continue our engagement to monitor product quality and ensure that design intent is maintained.

As you are aware, the Nuclear Weapons Council (NWC) authorized Phase 6.3 for the B61 LEP with a first production unit (FPU) in 2019. At Los Alamos, we are on a path to meet this deliverable because of investments that have been made over many years in the science and engineering campaigns. Tools such as the Dual Axis Radiographic Hydro-Test (DARHT) Facility , high performance computing and the Advanced Simulation and Computing (ASC) Program codes that we use to predict weapons performance are being applied today to the B61 LEP. We have used the investments in these campaigns to develop the technologies for gas transfer systems (GTS) so that we can quickly and cost-effectively implement specific designs for the B61. Given stable, predictable funding at levels consistent with the 6.2A study, I am confident that LANL will deliver on its responsibility for the B61.

Long Term Science

Science is the base that allows LANL to address challenging issues that face the stockpile. At LANL we have a scientific workforce that includes approximately 2,500 PhDs. They form the core of our scientific base. The weapons program directly benefits when these scientists work on challenging technical problems using tools such as DARHT, the Los Alamos Neutron Science Center (LANSCE), and the ASC Program. Our ability to do stockpile work today is the product of these investments. Our science and engineering campaigns produced mature technology that was ready when needed. Similar investments are needed today to ensure that the Laboratory has tools and technologies to be ready for tomorrow's challenges.

In addition to benefiting the Lab's weapons program, we are able to leverage these capabilities for broader national interests. They, in turn, feed valuable technical insights directly back into the nuclear weapons program, including Life Extension Programs. Our work in nuclear forensics and medical isotope production illustrates these points.

- Nuclear forensics and attribution: Los Alamos delivered a suite of models and databases for National Technical Nuclear Forensics applications, such as modeling debris signatures and other nuclear security applications. LANL's capabilities in this area are a direct outgrowth of the former nuclear weapons testing program where scientists had to study the detailed chemistry of soil samples to determine various characteristics of detonation. Our experts in this area not only help with the current nuclear forensics, they also support the weapons program by helping to reinterpret data from previous underground tests. This information is then used to validate our weapons codes.

- Thanks to the Isotope Production Facility at LANSCE, LANL is a national leader in producing strontium-82 for cardiac imaging and germanium-68 for calibrating proton emission tomography (PET) scanners. Other isotopes, such as aluminum-26 and silicon-32, are unique to Los Alamos and are not produced anywhere else in the world. With the demand for short-half-lived medical isotopes being one of the fastest-growing needs of health care providers, the industry and medical researchers are looking to Los Alamos to provide a stable supply of these isotopes. Providing these isotopes as a service to the nation maintains the skills at Los Alamos for producing and handling exotic isotopes.

Despite difficult and uncertain budgetary scenarios, a careful balance between LEPs and science, technology, and engineering must be maintained.

Looking Ahead

Just as training and equipping prepare our armed forces to fight in battle, the science done at the national laboratories prepares our employees with the knowledge and tools needed to sustain the stockpile. While the balance must shift as we apply our knowledge and tools to LEPs, we cannot abandon preparation for the future any more than the military can abandon training and equipping, even in the midst of fighting a war.

In general, the budget for Directed Stockpile Work Services has seen successive cuts that have hampered progress toward goals set in the Nuclear Posture Review (NPR), especially in the Component Maturation Framework, more sustainable hydrotest capability, nuclear safety research and development, and Plutonium Sustainment.

Over the last few months, I have been asked to estimate the budget impacts of pit reuse as a way to bridge our manufacturing gap. We are still in the early phases of work that would allow pits designed for conventional-high-explosive systems to be used in systems using insensitive explosives. Should the nation choose to pursue this path, we believe that approximately $50 million per year will be needed for the next five to ten years beyond already-planned investments before we could certify systems using these pits. Because this work must start now if this concept is to be viable for coming LEPs, we are planning experiments this summer to gain insight into system behavior. While we believe this a promising direction for innovation to meet a national challenge, we cannot confidently predict the outcome. There is risk.

Whether the ultimate decision is to move forward with an alternative plutonium approach, or to continue with CMRR construction, every day that we do not address the issue is a day in which our risks increase. At a minimum, we need access to the $120 million appropriated in FY12 that will remain after placing CMRR-NF in a stable state to make investments supporting a path forward. Furthermore, the $35 million already in the budget request for FY13 will be needed to accelerate PF-4 vault clean-out. Access to these funds will allow us to continue making wise investments in our plutonium capability. This includes studying a transportation system between PF-4 and RLUOB, expanded use of RLUOB, and a migration of processes from CMR to PF-4. If we are to support the LEPs necessary over the next decade, we cannot afford to postpone action to address the nation's plutonium capability.

Funding Issues

When looking at funding, we must address the issues we see today as well as the investments needed to meet challenges in an uncertain future. Today, the stockpile requires action-- action to address changes that we see occurring in the stockpile on timescales that are dictated by nature. Chemistry and physics take an unrelenting toll on the aging stockpile. As we work to modernize the stockpile, the balance is shifting toward today's issues as it must. However, I am concerned that short term stockpile needs may be shifting the balance too far to the present-- putting our ability to care for the stockpile in the future at risk.

I must speak about the difficult budget issues facing LANL this fiscal year. While planning in FY11 for the increases outlined in the 1251 report, LANL was prudent in hiring. Nevertheless, as FY12 began it seemed unlikely that we would see the full planned increase. In November of 2011, I established the Laboratory Integrated Stewardship Council (LISC) to ensure that we manage our resources in a consistent, conservative manner across the Laboratory. This council is chartered with making financial decisions to keep Laboratory spending in line with a highly constrained budget.

For FY12, LANL funding across our national security accounts is some $300 million lower than it was in FY11. In the FY13 budget request, funding at LANL appears to be down another $100 million.

These cuts made it necessary for me to make the difficult decision to move forward with a voluntary separation program to reduce our workforce. Just over a week ago more than 550 employees left the Lab. Many had decades of experience in the Weapons Program. Despite succession planning, we are losing valued employees sooner than expected.

Pension Relief

In 2006, Los Alamos made major changes in its pension system. New employees are no longer able to enroll in a defined benefits pension system. Rather, they are part of a defined contribution plan. While this system no longer provides the incentive to remain at the Laboratory until retirement, it also relieves LANL of the long-term liabilities associated with a defined benefits program.

The Laboratory remains committed to the benefits promised to employees who have, for many years, been participants in the defined benefits program—a program that has been closed since 2006. However, historically low interest rates coupled with the actuarial rules of the Pension

Protection Act (PPA) have caused estimates of future liabilities to balloon. As a result, the Laboratory has been making contributions to the pension plan out of program funds for the last few years at well above the $100 million level. While we have increased employee contributions, they are only a partial offset to the contributions required by the PPA. If interest rates return to levels that have been typical over the last 25 years, it will not be long before our plan appears to be over-funded.

Mr. Chairman, I urge the Congress to pass the proposed changes to the Pension Protection Act (PPA) that include a permanent "funding stabilization" provision. Today's unusually low interest rates, combined with existing pension funding legislation, have artificially increased our pension liabilities in the short term. This has reduced and will continue to reduce the funding available for the mission by tens of millions of dollars per year at a time when mission needs are growing and budgets are severely constrained.

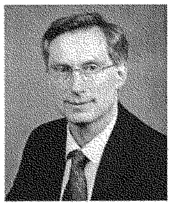
In summary, I believe the proposed "funding stabilization" relief would provide a substantial amount of funding back to weapons program activities without incurring undue risk in pension funding over the long term.

Closing

The fundamental premise of Stockpile Stewardship is that a healthy program can sustain a workforce able to make technically sound decisions supporting the stockpile, using the scientific tools they have developed. Today we are well-positioned to make these decisions because of the investments the country has made over the last two decades. However, I'm increasingly concerned that we may no longer be on a healthy path. As our budgets at LANL are reduced, our risks increase. Some risks may be acceptable, but I am sure that there will be a point at which those risks become unacceptable.

Thank you, Mr. Chairman, for the opportunity to testify today.

Charles F. McMillan, LANL Director



Charles McMillan has more than 22 years of scientific and management experience in weapons science and stockpile certification, hands-on experience in both experimental physics and computational science, and demonstrated success at balancing mission performance with security and safety.

McMillan previously led the Laboratory's weapons physics organization since 2006, when Los Alamos National Security, LLC, began managing the Laboratory. Prior to joining the Los Alamos, McMillan served in a variety of research and management positions at Lawrence Livermore National Laboratory in California.

McMillan is married with three college age children. He is an avid photographer and an accomplished musician, playing both the piano and organ as well as the recorder. His interest in early music dates back to his high school days when he considered majoring in music. Although he continues to perform ensemble music his intellectual fascination with science led him to study mathematics and physics and he continues to practice an active interest in astronomy and telescopes.

He holds a doctorate in physics from the Massachusetts Institute of Technology and a bachelor's degree in mathematics and physics from Columbia Union College. He has been awarded two DOE Awards of Excellence, one of which for development of an innovative holographic tool that enhances the ability to predict nuclear performance.

"I have great optimism for the future," said McMillan. "This is a complicated time, but also a time of great opportunity for the program, an opportunity to work with the Administration to shape tomorrow's nuclear security complex while effectively managing the nuclear stockpile along the way. The service we provide to the nation is as important now as it ever was."

FY 2013 BUDGET REQUEST FOR ATOMIC ENERGY DEFENSE ACTIVITIES AND NUCLEAR FORCES PROGRAMS

Hearing of the Subcommittee on Strategic Forces
Committee on Armed Services
U.S. House of Representatives

April 17, 2012

Penrose C. Albright, Director
Lawrence Livermore National Laboratory

OPENING REMARKS AND SUMMARY

Mr. Chairman and Members of the Committee, thank you for the opportunity to provide a statement for the record on the President's FY 2013 Budget Request and its impact on the important programs that our Laboratory proudly carries out for the nation. I am Parney Albright, Director of the Lawrence Livermore National Laboratory (LLNL).

LLNL is one of the Department of Energy's (DOE) National Nuclear Security Administration (NNSA) nuclear design laboratories responsible for helping sustain the safety, security, and effectiveness of our nation's strategic deterrent. In addition to our stockpile stewardship efforts, we also leverage our capabilities to develop innovative solutions to major 21st-century challenges in nuclear security, defense and international security, and energy and environmental security. I thank the committee for your continuing support for the important work we do.

This is a challenging period for the federal government, with many priorities that require attention at a time of budget austerity. This is also the case for the nation's Stockpile Stewardship Program, including the activities at Livermore. We are very excited about recent and prospective major accomplishments, which I will highlight, but we are also very concerned about impediments to current programs and long-term success in stockpile stewardship. In particular, I stress four points:

- Without sustained support for nuclear weapons science, stockpile stewardship will eventually fail.
- We remain optimistic about the prospect of long-term success of "science-based" stockpile stewardship provided that support is sustained. The skills deriving from a solid science base will enable stockpile stewards to maintain a safe, secure, and effective deterrent and deliver on challenging life-extension programs.
- Recognition of and support for the NNSA laboratories serving as "national security laboratories" will better help the United States meet a broad set of 21st-century security challenges. These broader activities complement our nuclear weapons responsibilities, adding depth, breadth, and strength to the laboratories' capabilities.
- The NNSA laboratories would perform their vital national security mission much more effectively if they were managed as trusted partners of the federal government and governed in a more streamlined/cost-effective way, consistent with the original intent of the federally-funded research and development center (FFRDC) construct.

NUCLEAR WEAPONS SCIENCE

The Stockpile Stewardship Program (SSP), which formally began in the 1990s with the decision to enter into a moratorium on nuclear testing, is an ambitious experiment. It is founded on the premise that the expertise of a workforce (and the judgments they make) that results from a detailed understanding of the *fundamental science* of how nuclear weapons work can serve as a substitute for the expertise (and judgment) developed historically through multiple and frequent design efforts—efforts that ultimately had to be proven in nuclear tests. To add to the complexity of this enterprise, this new workforce must deal with weapons that will be deployed well beyond their initially intended service lifetimes, and over time upgraded with the (highly desirable) safety and security features called for by the recent Nuclear Posture Review—features that represent changes to previously tested configurations of those weapons.

It is important to note that at the time we stopped nuclear testing, we did not understand well enough how weapons worked (which is why we had to test); there were a great number of empirical factors and approximations built in to the weapons design process that allowed efforts to proceed, but with that there was a landscape of test failures that indicated our lack of understanding of the basic underlying science. Hence, for stockpile stewardship to work, we needed to learn far more about the physical processes that transpire in the functioning of a weapon. When the SSP was initiated, the nuclear stockpile was in good shape, which meant that we had a window of time to develop necessary nuclear weapons science tools and knowledge before more difficult-to-deal-with problems would likely arise.

Developing these science tools has been—and remains—extremely challenging. Our knowledge of the underlying basic physics is ultimately embodied in computer models. These models utilize scientifically justified approximations—rendered more and more accurate by improvements in computing power, and by controlled experiments that determine needed parameters—to represent what we believe to be reality. However, these models cannot become "holy writ;" it is crucial that they be tested repeatedly against experiments conducted at relevant physical conditions, so that the assumptions and approximations embedded in the models can be verified and corrected as needed. To do otherwise is to invite disaster. Hence, the pillars of the SSP have included both the development of independent analytic capabilities—utilizing the world's most capable computing platforms—at Lawrence Livermore and Los Alamos national laboratories (each laboratory with differing approaches to modeling the underlying physics); but also the development of experimental facilities to collect data at the conditions relevant to the operation of a nuclear weapon. It is worth noting that every acknowledged nuclear state that has abjured testing is following the same approach to maintaining their stockpile.

Of course, the scientific understanding of nuclear weapons is not an end, but rather, as noted above, a process that underlies our capability to maintain the stockpile. First, each laboratory director provides an annual assessment of the stockpile. Hence, a crucial component to the SSP is the ongoing surveillance of the stockpile and the development of better surveillance methods. Again, here, the underlying premise of the SSP—that developing a detailed understanding of fundamental weapons science will lead to a workforce with the judgment and intuition heretofore developed through new weapons design and testing—is critical. If an issue is identified in a stockpile weapon, we as a nation need to know whether it can be ignored, fixed in the field, or is critical enough to call into question the reliability of a portion of the deterrent.

Finally, that judgment and experience must be turned toward Life Extension Programs (LEPs) that both sustain the extant stockpile and also allow for critical improvements in its safety and security. These advancements will in some cases result in deviations from fully tested configurations, and hence rely heavily on improvements in our understanding of fundamental weapons science. Furthermore, even if a weapon system were to have its lifetime extended without any deviations from the prior design, the reality is that component manufacturing processes change with time, some materials are no longer available, and no "blueprint" is sufficiently detailed to fill in all the decisions made historically on the production line. Certifying any weapon requires a workforce that understands the fundamental scientific aspects of nuclear weapons.

The full spectrum of SSP activities—a fundamental understanding of weapons science (based on theory and, crucially, experiments); its application to assessments; stockpile surveillance and development of better surveillance methods; dealing with significant findings and fixes; and LEPs—all serve to sustain the stockpile, exercise the skills and judgments of stockpile stewards, and, importantly, train the next generation of stewards. When the next round of LEPs for the extant stockpile is expected to begin in the 2030s, the people executing those LEPs will have been trained by people who themselves have never engaged in the development of a new design, nor executed a full nuclear test.

SSP depends on stockpile stewards being fully capable of identifying issues that arise in stockpiled weapons; resolving those issues through minor fixes or LEPs; and certifying the safety, security, and performance of the modified weapon without conducting a nuclear test. Strong support of all aspects of the SSP is required, because questions about safety, security, and performance will arise as long as the United States has nuclear weapons. Laboratory scientists and engineers must have the wherewithal to find and address problems, and the nation must have confidence in their ability to do so.

We have made remarkable progress in developing the necessary computational and experimental tools and in using them to gain knowledge about key issues. And we are attending to the immediate needs of the stockpile. Today, however, the hard challenges are now much closer as weapons age beyond their intended service life and important work to resolve key issues in nuclear weapons science remains to be done.

As noted briefly above, the simulation codes must have much higher fidelity than those originally used in the design of the weapon. Evaluating the performance of a weapon "as designed" is one issue; evaluating it when materials have aged and anomalies are present is much harder. Materials age at an accelerated rate when confined for years in the radioactive environment inside a nuclear weapon. The improved physics models required for science-based SSP are very complex (e.g., turbulence and the interaction of intense radiation with matter) and necessitate powerful computers. However, these codes—which embody our state of knowledge—must be tested against data.

Data collection about nuclear weapons performance falls into two broad categories: information pertaining to dynamics of the primary implosion and information pertaining to the nuclear explosion itself.

We collect data about the hydrodynamics of a weapon primary implosion at LLNL's Contained Firing Facility (CFF) and at the Dual Axis Radiographic Hydrodynamics Test (DARHT) Facility at Los Alamos National Laboratory (LANL). For example, in FY 2010, one of our large-scale tests explored advance safety and security concepts that could be used in future LEPs; another demonstrated advanced capabilities for assuring weapon performance. Through marked improvements in diagnostics, we are obtaining greater amounts of higher fidelity data about implosion dynamics. These data are compared to pre-shot predictions of results—performed with our most advanced computers—and gauge how well our physics models work.

Other key experimental facilities managed by Livermore that provide information about non-nuclear performance include the High Explosives Applications Facility (HEAF), where state-of-the-art diagnostics are used to study the performance of aging high explosives in nuclear weapons, and the Joint Actinide Shock Physics Experimental Research (JASPER) Facility at the Nevada National Security Site. A two-stage gas gun, JASPER is used to produce an extremely high-pressure shock wave in plutonium and collect material properties data critical to the simulation codes. JASPER completed mandated upgrades in FY 2011 and now operates as a Hazard Category 3 nuclear facility. Since JASPER returned to operation, five plutonium shots so far have collected vital data for LLNL and LANL.

A critical gap in our understanding of nuclear weapons science is the need for experimental data pertaining to the behavior of materials at the extreme conditions of a functioning nuclear weapon (100 million degrees temperature and 10 billion atmospheres pressure). With the National Ignition Facility (NIF) (and lesser but complementary capabilities in the Omega laser at University of Rochester's Laboratory for Laser Energetics and the Z-machine at Sandia National Laboratories (SNL)), it is now possible to gather high-energy-density (HED) science data at a precision and experimental rate that simply would not be possible by other means. Crucially, the NIF holds the promise of probing experimentally the conditions in a nuclear weapon that occur during the initial detonation—in particular, the boost process that determines the performance of the primary, which, in turn, drives the overall performance of the weapon. The ability to anchor the simulation codes with ignition data is pivotal to any discussion of design margins and performance.

STOCKPILE STEWARDSHIP PROGRAM SUCCESSES AND CHALLENGES

My discussion of recent successes and challenges in the SSP will largely focus on NIF, high-performance computing, and the W78 LEP, which are crucial to long-term success.

The National Ignition Facility (NIF)

NIF was commissioned at LLNL in 2009, and since then, the 192-beam laser has been performing very reliably as a high-precision experimental tool. During FY 2011, a total of 286 shots were fired on NIF, with 62 shots for the National Ignition Campaign (NIC) and 50 shots for stockpile stewardship and HED science applications. Over 100 shots were fired in January and February of 2012—a record performance for complex shots. The demands for experimental time are high. Even with NIF operating 24 hours a day, seven days a week, the requests for shots in FY 2012 total more than 500 days.

Researchers are executing the program to achieve fusion ignition and energy gain, and the wide range of record breaking experiments results to date demonstrate the enormous utility of NIF as a users' facility for nuclear weapon science, broader national security applications, frontier science, and pursuit of fusion power for energy security. We are making excellent progress toward transforming NIF into a users' facility in FY 2013.

NIF Laser Performance. In March 2012, NIF delivered a record-setting 1.875 million joules (MJ) of ultraviolet laser light to the center of the facility's target chamber. NIF generates nearly 100 times more energy than any other laser. This shot met a major milestone and exceeded NIF's design specification of 1.8 MJ. NIF is now able to conduct routine operations at full power. Very importantly, the record-setting event was also one of the most precise shots ever fired at NIF. The laser's precision and enormous flexibility in how to use the beams make possible the fielding of many different types of ignition and HED science experiments for which more than 50 different types of diagnostic instruments, many developed specifically for NIF, are providing exceptional data for a wide range of types of experiments.

Support of Stockpile Stewardship. NIF has already made a pivotal contribution to stockpile stewardship with resolution of the "energy balance" issue after a series of experiments performed last year. The issue was originally identified during the era of nuclear testing and it has remained a significant anomaly for 40 years—an anomaly that in the past was an important reason for full nuclear testing. Over the last decade, experiments on a variety of experimental facilities contributed to improving the understanding of this anomaly and pointed to its likely source. LLNL researchers developed a sophisticated computational model that better simulated nuclear weapons performance and, in particular the specific aspects of performance that could possibly explain the anomaly. The unique capabilities of NIF were required to validate simulation results. With resolution of the energy balance anomaly, LLNL and LANL will have more confidence in assessments of the current weapons, which continue to change with age, and will be able to make better-informed choices in upcoming LEPs.

Additional SSP-supportive experiments were conducted in FY 2011-12 to study how materials that are normally solids behave when subjected to unprecedented pressures—in this case tantalum and carbon. These experiments are important stepping stones toward understanding the more complex material behavior of substances like plutonium. FY 2013 is projected to be a very busy year for SSP experiments at NIF. Future plans call for a wide range of types of experiments to be performed by LLNL and LANL to better understand the physics of boost (thermonuclear burn in the primary explosion) and answer questions crucial to stockpile assessments, investigation of significant findings, and certification of LEPs.

The National Ignition Campaign. The goal of the National Ignition Campaign (NIC) is to compress and heat a millimeter-size target filled with deuterium and tritium to achieve fusion ignition and energy gain (at least as much energy output as input). The NIC team is also transitioning NIF to routine operations as a highly flexible HED science experimental facility. NIC, which concludes at the end of FY 2012, is managed for NNSA by the Laboratory and includes many national and international partners, representing national laboratories, academia, and industry.

NIC is making substantial progress in the quest to achieve fusion ignition and burn. Activities are progressing through a series of milestones with ignition and burn as a major milestone scheduled for the fourth quarter of FY 2012. The goal is to compress the cryogenically-cooled fusion fuel to a very small volume (compressed by more than a factor of 10,000 in density) and create a central "hot spot" that ignites and consumes a larger amount of surrounding hydrogen fuel. The goal is to turn mass into energy. A series of four shocks that must be precisely shaped and timed are used to implode the capsule and ignite the fuel.

NIC researchers are conducting a series of experiments to optimize the target implosion following the standard scientific approach of interweaving experiments and theory. These experiments occur at energies, temperatures, and pressures that have never before been probed, and hence that are well outside of the domain where our simulation models have been anchored—a domain that approaches the conditions inside a nuclear weapon. Through the iterative process of pre-shot prediction, experiment, and post-shot data analysis, new ground is being broken on the path to ignition. We are learning new physics and gaining a more fundamental understanding of thermonuclear reactions. This information is being used to continue improving our models as we move through the program, which in itself is testimony to the need for anchoring data and skepticism of models that are based solely on theory or are validated outside the domain of interest.

NIC (and more generally, the SSP) is a grand challenge with many scientific and engineering obstacles that test the skills and ingenuity of NNSA laboratory researchers. So far, we have overcome many obstacles and I have confidence that the NIC team will reach its objective of fusion ignition and burn. Others around the world see great value in having NIF-like capabilities and share confidence that the goal is within reach. China, Russia, and France are all committing to build (or have started to build) large laser systems for inertial confinement fusion (ICF); the United Kingdom works closely with NIF; and Japan and Korea are making substantial investments in ICF.

High-Performance Computing (HPC)

HPC is and always has been a defining strength of our Laboratory. SSP advances have required continuously pushing the envelope in HPC. As part of NNSA's Advanced Strategic Computing (ASC) program, we work closely with U.S. computer manufacturers to improve capabilities, and every generation of state-of-the-art computers pioneered at LLNL or LANL has later found broad application in making U.S. industry able to develop better products more quickly. Livermore is currently bringing into operation two highly capable machines: "Sequoia" and "Zin."

Sequoia. In January 2012, the IBM technical team began installation of the first four racks of Sequoia, the next leap forward in computing capability; the last of the 96 racks arrive this month. This next generation "BlueGene/Q" technology operates at an order of magnitude faster than previously deployed systems. Sequoia, which includes 1.5 million processors and 6 million threads, is capable of record-setting 20 petaflops (20 quadrillion, or a million billion, floating point operations per second). Sequoia is also record-breaking in power efficiency—at over 2 billion calculations per watt, it is nearly 50 percent more power efficient than any competing technology. Our goal is to have the machine fully performing science simulations before the end of 2012 and dedicated to classified computing in mid-2013.

Sequoia is an important step toward even larger computers that are needed to run predictive models of boost physics and thermonuclear burn processes in nuclear weapons. Equally importantly, considerable effort has gone into development of improved methods to efficiently characterize and bound margin to failure and its uncertainties. Quantification of Margin and Uncertainty (QMU) provides the underpinning of our assessment and certification processes. Rigorous implementation of QMU requires running many thousands of high fidelity simulations to map out the impact of uncertainties on weapon performance, which, in turn, requires more powerful computers.

Zin. In March 2012, LLNL completed installation and began classified computing on Zin, a machine with 1 petaflop performance. As part of the ASC Tri-Lab Capacity Cluster 2 (TLCC2) program, similar computers are being installed at LANL and SNL to increase computing capacity. LLNL led the vendor selection to procure standardized hardware and software environment through TLCC2 so that the laboratories would realize significantly reduced costs, increased efficiencies, and enhanced collaboration. Zin provides a substantial boost to classified computing at LLNL, and full deployment of TLCC2 will allow users from all three laboratories to begin preparing their codes on the actual architecture that they will experience when Sequoia goes into service.

High-Performance Computing as a National Security Imperative. To meet the demanding needs of SSP, we urge support for an initiative to reach the challenging milestone of exascale computing (a billion billion calculations per second) by 2020. LLNL is working with other NNSA and DOE laboratories to formulate a strategy for how to achieve this ambitious goal. Exascale computing is also critical to our role as a broad national security laboratory, with Livermore bringing to bear on critical problems HPC as one of our principal strengths. Modeling and simulation of complex systems to understand and predict their behavior is key to solving challenging problems in national security, energy security, and economic competitiveness. Other nations equally recognize the value of leadership in HPC to their futures. Sequoia puts the United States back in the lead (surpassing Japan and China) and it is critical that we sustain leadership by reaching exascale performance level before competitor nations.

The W78 Life-Extension Program (LEP)

In June 2011, LLNL and the U.S. Air Force launched a concept development study to extend the life of the W78 Minuteman III warhead. The W78, which is the dominant system for the ICBM leg of the nation's nuclear deterrent, is well beyond its planned service life and will reach 40 years before the LEP production begins. We need to address concerns identified in the surveillance of W78 that do not now affect performance. The LEP process, which begins with concept development (Phase 6.1), will take at least a decade to complete. As the program is conceived, production would start in FY 2023.

The concept development study is evaluating different LEP approaches including refurbishment, reuse, or replacement of weapon components. As required by the

Department of Defense (DoD), the study encompasses options that improve safety and security features and that make the warhead adaptable for deployment on SLBMs as well as ICBMs. At the end of the study, which should conclude this year, the California team (LLNL and SNL–California) will report findings and recommendations to the DoD/NNSA Project Officers Group. A key issue is the manufacturability of LEP components and systems—cost-efficiency, waste reduction, and avoidance of use of hazardous materials are important factors.

In addition to meeting the critical need to extend the service life of the W78, the LEP serves the long-term need to work on the full spectrum of stockpile stewardship activities—including warhead development from physics and engineering design through production engineering. This is an essential part of hands-on training to increase skills and expert judgment. The young scientists and engineers who worked on the W87 LEP in the 1990s are now the technical leaders for the W78 LEP, and they are training the next generation of leaders.

Other Stockpile Stewardship Program Successes and Challenges.

Assessments and Directed Stockpile Work (DSW). LLNL completed Cycle 16 of the Annual Stockpile Assessment with support from the newly implemented Independent Nuclear Weapon Assessment Process (INWAP) to strengthen peer review. Cycle 16 benefited from reduced uncertainties and increased scientific rigor due to improved simulation models, results of recent plutonium aging experiments, and better fundamental nuclear data deriving from joint work with LANL. Livermore also effectively managed its Significant Finding Investigation workload and its stockpile surveillance activities. However, our weapon assessments and DSW support activities are funding constrained, and of the systems in the stockpile, the B83 bomb and W80 cruise missile warhead are the least supported. With the FY 2013 proposed budget, we will likely have to curtail activities that impact our ability to assess the performance of these systems. Funding for technology development to improve certification and safety is also very constrained.

Facilities. LLNL sustained very nearly 100 percent availability of its mission-critical and mission-dependent facilities throughout FY 2011 as part of its Readiness in Technical Base and Facilities (RTBF) effort. However, we have not been able to keep pace with the needs for reinvestment in the Laboratory's aging overall infrastructure. LLNL receives less RTBF funds (by a factor of greater than two) than any other site in the complex. RTBF activities include our ongoing effort to prepare for shipping from the site special nuclear material requiring the highest level of security protection. More than 93 percent of the material has been removed and the work is on schedule to be completed in 2012. Important programmatic activities continue at the Laboratory's Superblock Facility and this well-maintained facility stands ready to support NNSA's new plutonium strategy with the planned delay in construction of the Chemistry and Metallurgy Research Replacement–Nuclear Facility (CMRR–NF) at LANL.

Additional Budget Burdens. The Lawrence Livermore National Security (LLNS), LLC, Defined Benefit Pension Plan up to now has been sufficiently funded that contributions have not been legally required. However, with interest rates at an historic low, liabilities have grown dramatically since mid-2009. As a consequence, statutory requirements of the Pension Protection Act of 2006 are forcing LLNS to act, and NNSA has granted LLNS approval to begin employee and employer contributions in FY 2012. By starting now, we save NNSA almost $200 million through FY 2022. I urge Congress to examine whether the provisions of the Pension Protection Act, designed to protect private sector pension plans, are appropriate for the NNSA complex of laboratories and plants. If a Pension Protection Act waiver/exception/modification is not enacted, $88 million will have to be diverted from programmatic work in FY 2013.

LLNL AS A NATIONAL SECURITY LABORATORY

For many years, LLNL employees have applied their very special capabilities to develop innovative technical solutions to help meet a broader set of national needs. Work for NNSA on nuclear nonproliferation and counterterrorism, the Office of Science and others in DOE, other federal agencies, and additional sponsors (e.g., in U.S. industry), is very important and has long been integrated into our mission and contribution to national security in the broadest sense. Our notable accomplishments in FY 2011-12 include:

- *Radiation Detection.* LLNL researchers developed the first plastic material capable of identifying nuclear substances such as uranium and plutonium from benign radioactive sources. The new technology could be used in large, low-cost detectors for portals to reliably detect nuclear substances that might be used by terrorists.
- *Emergency response.* Operating around the clock for 22 days, LLNL's National Atmospheric Release Advisory Center (NARAC) provided up-to-date atmospheric dispersion predictions, plume projections, and radiation dose estimates to agencies in the U.S. and Japan responding to the Fukushima nuclear reactor disaster.
- *Low-collateral-damage munition.* The U.S. Air Force funded LLNL in May 2010 to rapidly develop the design for a new low-collateral damage munition (BLU-129/B). Fielding of the munition was approved in September 2011. The effective integration of experiments with HPC simulations enabled quick and effective optimization of munition performance while meeting demanding engineering requirements.
- *Cyber security.* LLNL has created new capabilities for cyber-security work sponsors to provide real-time situational awareness inside a large computer network using a distributed approach to monitoring for anomalous behavior.
- *Space situational awareness.* LLNL has developed detailed physics-based simulations to provide real-time analysis of space flight safety risks, and we are designing new prototype collision-warning mini-sensors for deployment in orbit.
- *Rapid development of new pharmaceuticals.* Working with an industrial partner, LLNL researchers applied sophisticated computer models to sift through a large range of possibilities and identify three efficacious drug candidates in three months (normally a two- to five-year process).
- *Industrial partnering in HPC.* In March 2012, LLNL selected six pilot projects to partner with industry to accelerate the development of energy technology using LLNL's (unclassified) HPC resources through the Livermore Valley Open Campus (adjoining LLNL and SNL–California).

It is widely appreciated that the NNSA laboratories are unique (in terms of capability, talent, scale, and dedication to mission) national resources that should be more broadly applied to address pressing 21st-century needs in defense and international security, energy security, and innovations to enhance economic competitiveness. As a dual benefit, the activities crucially add depth, breadth, and strength to the laboratories' technical base, which is important to long-term success in stockpile stewardship. *Managing for High-Quality Science and Engineering at the NNSA National Security Laboratories*, recently prepared by a National Academy of Sciences (NAS) committee at the behest of Congress, recommended "that Congress recognize that maintenance of the stockpile remains the core mission of the Labs, and in that context consider endorsing and supporting in some way the evolution of the NNSA Laboratories to National Security Laboratories..." Formal recognition of our national security mission responsibility would be very beneficial—as would steps to help lower operating costs at the laboratories and simplify the processes for arranging inter-agency work.

THE LABORATORIES AS TRUSTED PARTNERS IN NATIONAL SECURITY

Employees at the NNSA laboratories and plants are dedicated to national service. At the laboratories, we take on careers because we believe we can "make a difference" working with outstanding colleagues at state-of-the-art facilities on nationally important problems. As federally-funded research and development centers (FFRDCs), our management contracts in principle place the day-to-day responsibility for national security research in the hands of non-federal employees in order to ensure that staff and infrastructure of the highest quality are available and dedicated to the missions of our government sponsors. In this model, the government decides "what" needs to be done and provides the funding, and the laboratories decide "how" to assure the needed capabilities are available, and then how best to accomplish those tasks within the federally defined constraints. This partnership with the government should indeed be a partnership

The national laboratories, along with the plants, are the sinew and muscle of the nuclear weapons enterprise; they are the corporate memory, the execution arm, and the infrastructure. In many ways, they fulfill the same role within NNSA as does the uniformed military within DoD. Such a relationship works well when there is mutual trust between the partners, a clear understanding of roles and responsibilities, and a shared vision and clear focus on mission.

The *Managing for High-Quality Science and Engineering at the NNSA National Security Laboratories* report by the NAS committee speaks of the broken relationship between NNSA and the laboratories, stemming from a fundamental lack of trust. We need to return to a strong partnership between the government and the laboratories with active engagement of the laboratory directors in collaborative strategic discussions with NNSA management about program direction, health of the laboratories, and mission priorities.

The NAS committee's findings are not new. *America's Strategic Posture*, issued in 2009 as the final report of the Congressional Commission on the Strategic Posture of the United States, is highly critical of the governance structure and "micromanagement and unnecessary and obtrusive oversight." An investigation of other FFRDC governance models should be able to provide alternatives and help affect a cultural change in the way the laboratories are managed. We need to move from a duplicative, multi-layered, and poorly aligned governance system to a more streamlined, cost-effective approach that would restore a focus on mission and a trusted partnership. An operational way to do this is to provide a level of funding for oversight that is consistent with best practices for other FFRDCs. The savings, which could be substantial—within the government and at the laboratories, which have to absorb the costs of transactional oversight—could be reinvested to make for stronger programs and healthier laboratories.

As an example of how other agencies approach FFRDC governance, the Jet Propulsion Laboratory (JPL) is an instructive (but by no means unique) example. There are significant differences between JPL and LLNL; even so, the contrast in the FFRDC relationship is striking. JPL is a $1.5 billion center with more than 5,000 employees, managed by the California Institute of Technology as an FFRDC for the National Aeronautics and Space Administration (NASA). NASA governs the agency with three-agency level councils and the center directors are members. The Site Office at JPL performs no assessments and Headquarters performs Mission and Environment, Health, and Safety reviews three times per year. In contrast, over 1,300 external audits were performed at LLNL in FY 2011 as part of NNSA's transactional oversight.

NNSA monitors performance at LLNL using an annual Performance Evaluation Plan (PEP). In FY 2011, the PEP had 11 Objectives, 42 Measures, 79 Targets, 5 Award Term Incentives, 12 Multi-site Targets (all but two applicable to LLNL), and a large number of supporting metrics to gauge performance. The DOE/NNSA Site Office at Livermore defines 324 elements in their management assessment plans. JPL and NASA dispensed with the PEP approach, deciding that it interfered with a focus on mission.

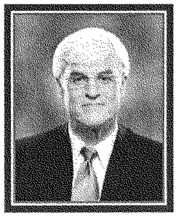
There is one area where we have seen improvement toward an effective partnership with NNSA: reform of security policy and procedures. The effort, which began about two years ago, is led by NNSA's Defense Nuclear Service (DNS) and is collaborative with NNSA sites and contractors. DNS formed combined teams (federal and contractor) of subject matter experts (e.g., in Information Security and in Physical Protection). The goal was to review and replace DOE Office of Health, Safety and Security (HHS) orders with a more streamlined set of NNSA policies (NAPs) that provide the security directors at NNSA sites greater flexibility to meet their particular needs. So far, two NAPs have been created, which is saving an estimated $37 million per year in operating costs at LLNL alone. Seven more NAPs are in the pipeline and expected to be released soon.

CLOSING REMARKS

My overall message is a "good news" story with a note of caution. With continuing investments in HPC and with NIF coming on-line as a unique experimental facility to gather necessary input and validation data for nuclear weapons science simulation codes, science-based stockpile stewardship is on the path to success. However, vigilance and strong partnerships are required to sustain program support so that there will be skilled and motivated stockpile stewards as long as the nation relies on nuclear deterrence.

All of us at LLNL look forward to serving as a trusted partner in the nation's national security enterprise and are proud to provide innovative science and technology to meet a broad set of national security needs. We thank you for your continuing support.

Lawrence Livermore National Laboratory



DR. PENROSE (PARNEY) C. ALBRIGHT
Lawrence Livermore National Laboratory

Ph.D., Physics, University of Maryland (1985)
M.S., Physics, University of Maryland (1982)
B.S., Physics/Applied Mathematics,
The George Washington University (1979)

Dr. Parney Albright was named the 11th Director of Lawrence Livermore National Laboratory (LLNL), effective December 1, 2011. He will be responsible for the management of the Laboratory and also will serve as the President of Lawrence Livermore National Security (LLNS), LLC.

Dr. Albright has extensive experience in executive leadership, including policy direction, strategic planning, Congressional and Executive branch interactions, financial and personnel management of large mission-focused science and technology organizations, and research, development, testing, and evaluation of national security technologies and systems. He has a broad and deep understanding of U.S. military and international security requirements, functions, and processes in the national security arena.
Dr. Albright has served as the Principal Associate Director for Global Security at LLNL where he has provided the vision and leadership at the Laboratory for its efforts to broaden its engagement with the national security and energy communities. He has guided the Laboratory toward an emphasis on understanding mission sponsor needs and constraints and enhancing the Laboratory's reputation through creation of a culture focused on disciplined project execution and delivery. Dr. Albright has successfully developed strong programmatic partnerships with Sandia and Los Alamos and has led the efforts of the three laboratories to reduce barriers that impede their ability to apply their capabilities in the service of a broader set of sponsors.

Before arriving at LLNL, Dr. Albright was President of Civitas Group, LLC where he led high profile projects, such as: providing a net assessment of the nation's biodefense enterprise as mandated by Presidential directive HSPD-10; and conducting critical analyses of the first Quadrennial Homeland Security Review, which contributed materially to the final result and created an analytic construct for setting priorities and making investment decisions that has been embraced by DHS leadership.

Prior to Civitas, Dr. Albright was confirmed by the Senate to the position of Assistant Secretary of the Department of Homeland Security on October 3, 2003. His responsibilities included developing the multi-year strategic planning guidance and budget execution for the complete portfolio of programs comprising the Science and Technology Directorate. Dr. Albright provided the vision and scientific leadership that created a multitude of diverse, high-impact RDT&E activities for this newly created organization. Under his leadership and guidance, major new national efforts were created in radiological and nuclear security; biological, chemical, and explosives defense; border security, trade and travel facilitation; aviation and other aspects of transportation security; national incident emergency response and consequence management; and critical infrastructure protection.

Dr. Albright concurrently held the positions of Senior Director for Research and Development in the Office of Homeland Security and Assistant Director for Homeland and National Security within the Office of Science and Technology Policy. He was the lead official within the White House responsible for providing advice to the Executive Office of the President on science and technology issues surrounding homeland security, and on the threat of biological, nuclear, and chemical terrorism.

Past accomplishments include working at the Defense Advanced Research Projects Agency (DARPA) where he developed and managed several multi-million dollar programs associated with special operations, intelligence collection, molecular biology, communications, and maritime operations. He also worked as research staff at the Institute for Defense Analyses (IDA) where he became an internationally recognized scientific expert on ballistic and cruise missile defense systems; space based infrared and launch detection systems; and weapons and sensor system design and analysis. Dr. Albright designed and executed several experiments, including one carried out by the crew of the Space Shuttle (STS 39).

MEMORANDUM OF AGREEMENT
BETWEEN
THE DEPARTMENT OF DEFENSE
AND
THE DEPARTMENT OF ENERGY
CONCERNING
MODERNIZATION OF THE U.S. NUCLEAR INFRASTRUCTURE

I. Introduction

Consistent with the recommendations from the 2010 Nuclear Posture Review (NPR), the Secretaries of the Department of Defense (DoD) and the Department of Energy (DOE) agree that it is necessary to modernize the nuclear weapons infrastructure of the United States. This infrastructure is maintained by the National Nuclear Security Administration (NNSA) – an organization located within DOE. Modernization of the infrastructure is needed to ensure safe, secure, sustainable and cost-effective operations in support of scientific and manufacturing activities. It is also necessary to bolster key scientific, technical and manufacturing capabilities needed to ensure that the U.S. nuclear weapons stockpile remains safe and effective while avoiding the requirement for new nuclear tests. Finally, a strengthened stockpile management program is needed to address known technical problems and to help ensure support for ratification of the New Strategic Arms Reduction Treaty and Comprehensive Test Ban Treaty.

This Memorandum of Agreement (MOA) documents the program and budgeting commitments made by DOE and the DoD (collectively herein the "Parties") in connection with this initiative. The MOA also specifies annual reviews of the program to be carried out jointly by the two Departments under the auspices of the Nuclear Weapons Council (NWC).

II. Statutory Authority

1. DoD enters into this MOA under the authority of 10 U.S.C 113.

2. DOE enters into this MOA under the authority of section 646 of the Department of Energy Organization Act (Pub. L. 95-91), as amended; 42 U.S.C. § 7256.

III. Agreements

1. DoD agrees to work with the Office of Management and Budget to transfer to DOE $5.7 billion of budget authority in Fiscal Years 2011-15 for NNSA's nuclear weapons and Naval Reactors programs. This includes a transfer of $4.5 billion of budget authority to the Weapons Activities/Nuclear Security Enterprise appropriation, including $561 million in FY 11. This also includes transfer of an additional $145 million of budget authority to the Weapons Activities/Nuclear Security Enterprise appropriation for science, technology and engineering activities in the Enhanced Stockpile Stewardship program in FY 12-15 to match an identical DOE investment. If the transfer of budget authority is approved, the modernization activities identified in Attachment 1, which is attached to and constitutes an

integral part of this MOA, will be fully funded through 2015 within the base NNSA budget plus this transfer. Separate from nuclear weapons program activities, DoD intends to transfer an additional $1.1 billion of budget authority for FY 11-15 for Naval Reactors, including $80.6 million in FY 11. These transfers of budget authority are intended to be reflected in the President's Budget for FY 11-15. Attachment 1 details the transfers by year and program.

2. As noted in Attachment 1, DOE agrees to use this transferred budget authority to supplement NNSA funding in order to fully fund the following:

   - Complete the design and begin construction of the Chemistry and Metallurgy Research Facility Replacement (CMRR) nuclear facility (NF) at Los Alamos National Laboratory (LANL) – a facility that conducts plutonium research and development and provides analytical capabilities in support of pit surveillance and production. Plan and program to complete construction by 2020, and ramp up to full operations in 2022.
   - Increase pit production capacity and capability at the adjoining PF-4 facility (part of the main plutonium facility) at LANL to demonstrate pit reuse by 2017 and production by 2018-2020. Plan and program to ramp up to a minimum of 50-80 pits/year in 2022.
   - Complete the design and begin construction of the Uranium Processing Facility (UPF) at Y-12 to support production and surveillance of highly-enriched uranium components. Plan and program to complete construction by 2020; ramp up to a minimum of 50-80 Canned Sub Assemblies (CSAs) per year in 2022.
   - Complete the ongoing Life Extension Program (LEP) for the W76 warhead (to be completed by 2017) and LEP for the B61 bomb (first production unit [FPU] by 2017). Completion will free up capacity for other life extension programs.
   - Ensure that capabilities are available so that future warhead life extension programs will allow for increased margin and enhanced warhead safety, security and control.
   - Begin LEP study by FY 11 to explore the path forward for the W78 and the W88 systems (anticipated FPU following the completion of the B61 LEP, currently scheduled for 2020)—one option for which is a common ICBM/SLBM warhead.

3. DOE agrees to provide the resources necessary to fund at sufficient levels scientific, technical and engineering activities related to maintenance assessment and certification capabilities for the stockpile. All budget authority will be identified and designated for this use prior to submission of the President's Budget for FY 2011. Among other things, this budget authority will be prioritized to:

   - Restore sufficient funds for warhead surveillance and for the science and technology that support stockpile assessment and certification in the absence of nuclear testing.
   - Adequately fund directed stockpile work including maintenance, assembly, disassembly and dismantlement activities.
   - Protect the human capital base at U.S. nuclear weapons laboratories —including the ability to design nuclear warheads as well as development and engineering expertise and capabilities—through a stockpile stewardship program that fully exercises these capabilities.

4. Naval Reactors will use $1.1 billion in increased FY 11-15 budget authority to:

   - Design/develop the new reactor plant for the OHIO Class submarine replacement,
   - Design/construct a reactor core and refuel the DOE Land Based Prototype Reactor Plant in New York with technologies and capabilities planned for OHIO replacement core—this will test the manufacturability of the replacement reactor and thereby mitigate technical, cost and schedule risks.

5. DOE also agrees to strictly limit the use of transferred budget authority to support only those elements identified in Attachment 1 in its budget throughout the period from FY 11-15. The DoD target transferred budget authority will become part of the baseline funding for (1) Weapons Activities/National Security Enterprise appropriation aligned to programs in Directed Stockpile Work, Campaigns and Readiness in the Technical Base and Facilities, and (2) Naval Reactors appropriations. Both DoD and DOE agree to make every effort to ensure that Congress appropriates the funds in the amounts and for the purposes identified in this agreement.

6. DOE agrees that the transfer of budget authority from DoD is planned to be a one-time transfer during the period FY 2011-2015 consistent with the 2010 NPR recommendations. During this period, no additional transfer from DoD to DOE for purposes of this MOA shall be effected. NNSA's budget for FY 11-15 reflects planning for these recommendations approved by the President. If future Presidential decisions do not support the activities specified, then this MOA will be revised accordingly. Funding requirements for budgets submitted beyond FY 2015 will be negotiated as needed.

7. NNSA will not require additional resources during this period from DoD to meet the requirements of the NPR, so long as those requirements remain as stated in this MOA. If available funds fall below target amounts, or if costs grow, DOE agrees to work with DoD to adjust target dates so as to carry out the intent of these initiatives as quickly as possible but without any additional DoD funds.

IV. Reviews

1. In order to implement this agreement, and ensure its effective operation, the two Secretaries agree to direct their staffs to conduct and participate in the following reviews:

   - Semi-annual programmatic reviews by the NWC,
   - Annual NNSA programming and budgeting reviews which are conducted at the weapons program element level and include the items in this MOA. Specifically, NNSA will engage the NWC regarding its program of work for the items in Attachment 1, and the annual proposed funding necessary to support this work, to ensure agreement that the commitments of this MOA are being fulfilled. Any disagreements identified by the NWC will be brought to the attention of the Secretaries of Defense and Energy and will be resolved jointly.

2. The Secretary of Defense designates the Under Secretary of Defense (AT&L) as the senior staff contact for carrying out this agreement, in coordination with the Under Secretaries of Defense for Comptroller and for Policy. The Secretary of Energy designates the Under Secretary for Nuclear Security as the senior staff contact for carrying out this agreement, assisted by the Chief Financial Officer.

3. The Secretaries of Defense and Energy agree that the modernization of the U.S. nuclear infrastructure and effective support to the nuclear stockpile are critical to achieving President Obama's vision for a safe, secure and effective nuclear deterrent. The Secretaries fully support this agreement, which represents a key step toward accomplishing required modernization and advancing the national security of the United States.

V. General Provisions

1. This MOA in no way restricts either Party from participating in any activity with other public or private agencies, organizations, or individuals.

2. This MOA is neither a fiscal nor a funds obligation document. Nothing in this MOA authorizes or is intended to obligate the Parties to expend, exchange, or reimburse funds, services, or supplies, or transfer or receive anything of value.

3. This MOA is strictly for internal management purposes for each Party. It is not legally enforceable and shall not be construed to create any legal obligations on the part of either Party. This MOA shall not be construed to provide a private right or cause of action for or by any person or entity.

4. All agreements herein are subject to, and will be carried out in conformance with, all applicable laws, regulations and other legal requirements.

5. This MOA enters into effect upon signature. It may be modified by mutual agreement of the Parties in writing.

6. The Parties may discontinue participation in this MOA in writing at any time.

Signed in duplicate.

FOR THE DEPARTMENT OF DEFENSE:	FOR THE DEPARTMENT OF ENERGY:
Robert M. Gates	Steven Chu
Secretary of Defense	Secretary of Energy
Date: MAY 3 2010	Date: APR - 1 2010

Attachment 1

DoD Budget Authority Target Transfer to NNSA

Item	Added Funding Above NNSA Base ($ millions)					
	FY 2011	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**Total**
Weapons Activities/Nuclear Security Enterprise Appropriation						
Infrastructure						
CMRR-NF	151.4	255.0	260.0	242.2	300.0	1,208.6
Uranium Processing Facility	59.8	55.4	135.9	193.4	320.0	764.5
High Explosive Pressing Facility	30.0	30.4	-	-	-	60.4
Neutrons for Material/ Nuclear Science	-	-	-	-	-	-
Life Extension Programs (LEPs)						-
B61 Bomb Stockpile Systems	160.0	131.0	133.0	169.0	192.0	785.0
Follow-on LEP	26.0	56.0	102.0	300.0	300.0	784.0
W76-1 Warhead Quantities	40.0	46.0	46.0	46.0	46.0	224.0
Plutonium Sustainment	36.0	38.0	38.0	39.0	30.0	181.0
Advanced Certification	57.8	85.6	110.6	111.3	79.6	444.9
Enhanced Stockpile Stewardship	0	39.0	33.0	48.0	25.0	145.0
Subtotal, Transfer to Weapons Activities/Nuclear Security Enterprise	**561.0**	**736.4**	**858.5**	**1,148.9**	**1,292.6**	**4,597.4**
Naval Reactors Appropriation						
Reactor Design and Development						
Trident Replacement Reactor	45.4	83.0	122.7	153.8	192.9	597.8
Land-based prototype	35.2	67.9	101.0	125.0	158.0	487.1
Subtotal, Transfer to Naval Reactors	80.6	150.9	223.7	278.8	350.9	1,084.9
Total DOD transfer to NNSA	**641.6**	**887.3**	**1,082.2**	**1,427.7**	**1,643.5**	**5,682.3**

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

APRIL 17, 2012

RESPONSES TO QUESTIONS SUBMITTED BY MR. TURNER

Secretary D'AGOSTINO. Thank you for your continued support of the Nation's nuclear deterrent and your interest in the National Nuclear Security Administration (NNSA). We share a common goal of ensuring our nuclear stockpile remains safe, secure, and reliable and we look forward to working with you to improve how we achieve that goal.

As you know, the Statement of Administration Policy (SAP) on H.R. 4310 registered strong objections to provisions of the bill as they relate to the Department of Energy (DOE) and the National Nuclear Security Administration (NNSA). While we agree on the need to continuously improve NNSA's performance, the Administration strongly opposes the sections dealing with governance, management, and oversight of the nuclear security enterprise because they would unduly restrict the authority of the Secretary of Energy, weaken safety standards and protections for workers and the general public; and fundamentally alter the nature of the relationship between the Department and its contractors; in particular the NNSA weapons labs.

The NNSA, in partnership with the DOE, has been actively working to move beyond the Cold War nuclear weapons complex towards a 21st century Nuclear Security Enterprise by: reshaping the relationship between the laboratories, sites and headquarters; enacting a series of management reforms intended to both improve the way it does business and increase the efficiency of its operations; maintaining a safe, secure, and responsible security posture at its sites; and engaging in efforts to examine and reduce the number of budget reporting categories.

The following examples offer a brief summary of the reform efforts being undertaken by the NNSA to achieve those ends. We believe these and related actions help address the problems that were identified in the reports that you refer to in your letter to the President. Therefore, we submit to you that additional legislative actions in H.R. 4310 are unwarranted at this time and could have deleterious effects in DOE governance of its contractors and the safety and security of workers and the general public.

NNSA–National Laboratory Relationship Improvements

The February 2012 National Academy of Sciences and previous reports have expressed concerns with the relationship between the NNSA and the Laboratories, including the need to streamline operations. Over the past few years, the NNSA and DOE have been implementing the following actions to build trust and drive efficiencies and for this important relationship:

- To increase senior level communication, restore trust and foster collaboration on significant strategic improvements, the NNSA Administrator has initiated monthly executive forums that include the senior contractor leadership from the NNSA labs and plants, NNSA Field Offices and senior NNSA headquarters staff. This forum is currently collaboratively working three major initiatives focused on improving the efficiency and effectiveness of NNSA oversight.
    1. National Nuclear Security Administration Equivalency Matrix: A multisite NNSA effort to examine existing DOE contractual requirements and other nonstatutory requirements that can be adequately achieved through industrial standards and commercial practices.
    2. Benchmarking: NNSA has established a cross functional team between NNSA and Laboratory representatives to review models in place at other laboratories and Federally Funded Research and Development Centers (FFRDCs) to document best practices and to make informed recommendations to increase the efficiency of the NNSA complex.
    3. Strategic Performance Evaluation Plan Pilot Program: NNSA is undertaking a pilot program to streamline its evaluation of contractor performance by focusing on strategic outcomes indicative of acceptable overall performance in lieu of its historic tactical focus.
- Senior NNSA and DOE's Office of Health, Safety, and Security (HSS) personnel visited each of the seven nuclear sites and asked senior contractor and Federal personnel whether the Department's nuclear safety requirements were exces-

sively burdensome. Site Federal and contractor personnel consistently agreed that while there have been implementation issues the nuclear safety requirements themselves are not excessive or inappropriate. The review identified areas for improvement in the nuclear safety directives, which were provided to the responsible offices and addressed in recent revisions.

- The Secretary's "National Laboratory Director's Council," which includes the NNSA Labs, was tasked with identifying burdensome requirements for the DOE and NNSA. Of the 28 burdensome requirements identified to date by the Lab Directors, 25 have been resolved, two are on hold at the request of the Directors, and one is still being worked.
- NNSA's Enterprise Operational Requirements Review Board (EORRB) engages Lab and Plant Directors, Site Managers and Headquarters leadership to look at requirements and directives in order to ensure the level of prescription is appropriate and that the requirements are not excessively burdensome. This initiative has ensured that comments from NNSA personnel, including contractors, are adequately addressed. Since using this process, NNSA has been able to obtain a satisfactory resolution of 100% of its concerns during the revision of DOE directives, further ensuring that the desired balance in oversight is achieved.
- The NNSA Administrator's Policy (NAP–21) "Transformational Governance and Oversight," signed out last year, defined principles, responsibilities, processes and requirements to help in transforming and improving governance and oversight. NNSA also created a governance board to address governance issues. This document continues to be revised as additional opportunities for improvements in efficiency and effectiveness are identified. Using the NAP–21 guiding principles, the Office of Defense Nuclear Security continues to implement transformational governance activities, including major changes in how security policy is developed (using field-led teams), improving efficiency by allowing our site contractors to approve security plans and procedures themselves instead of requiring Federal officials to approve, and establishing a field-led working group to review performance and assurance actions and identify gaps, inefficiencies or inconsistencies with NAP–21, as well as potential inefficiencies.
- NNSA has continued its support for laboratory-directed research and development efforts, an essential scientific component of a laboratory's ability to recruit and retain top scientists and engineers, shape the future of nuclear security, and to seed innovation in critical national security areas.
- A four-party governance charter has been signed by the Departments of Energy, Defense, Homeland Security and the Office of the Director for National Intelligence to establish a means to examine strategic alignment of science and technology capabilities across agencies in order to prevent failure in critical national security areas. This helps facilitate the critical Work For Others (WFO) activities of the laboratories for interagency customers.

Organizational & Business Improvements

- In March 2012, NNSA created and filled a new position of Associate Administrator for Infrastructure and Operations. This new organization is responsible for the integrated management of the NNSA Site Offices and coordination of all aspects of functional mission support across the NNSA enterprise. This will facilitate an NNSA enterprise approach to infrastructure management and operational support necessary for achievement of the OneNNSA concept.
- After more than 2 years of analysis and outside reviews, NNSA released a Request for Proposal (RFP) for the combined management of the Y–12 National Security Complex and Pantex Plant, with an option for phase in of Tritium Operations performed at the Savannah River Site. Combining contracts and site offices will allow NNSA to improve performance, reduce the cost of work, and operate as an integrated enterprise.
- In 2011, NNSA created an Acquisition and Project Management organization to improve business practices. This represents a fundamental change in NNSA's approach to project and construction management. This office focuses on improving the quality of work while keeping projects on time and on budget across the Enterprise. For example, for the Uranium Processing Facility Phase A scope of work (rerouting Bear Creek Road and site utilities), the APM analysis of acquisition alternatives identified an alternate acquisition strategy that was subsequently approved resulting in a $9M cost savings. Other similar acquisition analyses are planned for upcoming NNSA projects.
- NNSA has realigned functions, responsibilities, and authorities in the NNSA management structure to support implementation of governance reform initiatives. This realignment has provided for clear and direct lines of communication from the federal work-force to the contractor with a focus on mission execution.

- NNSA re-evaluated the assignment of authorities and responsibilities (and its delegations of authorities) to move decision making to the lowest appropriate and competent level in the organization. This has resulted in more timely and better informed actions and decisions which in turn led to increased productivity.
- NNSA is working to develop and implement governance reform metrics. The metrics will be used as inputs to demonstrate results and benefits of governance reform and enhance the use of data for Nuclear Security Enterprise (NSE) decisionmaking.
- NNSA awarded a Blanket Purchase Agreement for Enterprise Construction Management Services. The agreement will standardize NNSA's approach to project management across the enterprise and provide subject matter experts to provide independent analysis and advice related to the design and construction of facilities.
- NNSA has developed and implemented an integrated assessment process to minimize duplication of effort in conducting requirements driven assessment activities. Project requirement reviews are coordinated and led by a single office eliminating duplicative reviews for alternative analysis, cost estimating, acquisition planning, and safety.
- NNSA has affirmed the Contractor Assurance Systems and Site Office Line Oversight processes at three NNSA Sites. As a result numerous duplicative requirements, (e.g., reporting, approvals, systems, and regulations, directives, or policies), have been eliminated from the contract. The result is reduced transactional oversight which in turn frees both contractor and federal employees to focus on mission accomplishment. [See page 41.]

Secretary D'AGOSTINO. [The information was not available at the time of printing.] [See page 42.]

RESPONSE TO QUESTION SUBMITTED BY MR. BROOKS

General KEHLER. The Air Force is committed to safely operating the aging UH–1Ns and is exploring a cost-effective strategy to sustain and upgrade these aircraft until they can be replaced. While there is no established end-of-life, I am confident the Air Force can life-extend the UH–1N. The Air Force is also exploring a number of strategies to mitigate the capability gaps in the nuclear security mission. [See page 22.]

RESPONSES TO QUESTIONS SUBMITTED BY MR. GARAMENDI

Secretary D'AGOSTINO. Both the U.S. and Russia have each committed to dispose of 34 metric tons (MT) of weapons plutonium, enough for approximately 17,000 nuclear weapons. Under the Plutonium Management and Disposition Agreement (PMDA), both the U.S. and Russia agreed to dispose of the weapon-grade plutonium by fabricating it into mixed oxide (MOX) fuel for use in commercial reactors.

Weapon-grade plutonium, unlike weapon-grade uranium, cannot be blended with other materials to make it unusable in weapons. However, it can be fabricated into MOX fuel and irradiated in civil nuclear power reactors to produce electricity. This irradiation results in spent fuel, a form that is not usable for weapons or other military purposes.

This approach was endorsed in a 1995 National Academy of Sciences Report, "Management and Disposition of Excess Weapons Plutonium," which identified the use of mixed oxide fuel as a means to dispose of surplus weapon-grade plutonium that posed "a clear and present danger to national and international security." Additionally, Russia supported the MOX option because it would result in a change in the isotopic composition of the plutonium making it unusable for weapons, whereas other alternatives for disposition like immobilization would not.

The Protocol amending the PMDA, signed on the margins of the 2010 Nuclear Security Summit in Washington, D.C., provides that this weapon-grade plutonium be disposed by irradiating it in light water reactors in the United States and in fast-neutron reactors operating under certain nonproliferation conditions in the Russian Federation. Under the Agreement Russia commits to (1) operate its fast reactors with a breeding ratio of less than one, resulting in a net decrease in the amount of weapon-grade plutonium and (2) not generate any new stockpiles of weapon-grade plutonium.

While both countries will be fabricating surplus weapon-grade plutonium into MOX fuel, the difference in the reactors that will use the fuel is simply based on the current nuclear energy strategy in each country and availability of commercial reactors. In the U.S., light water reactors are predominant. In Russia, its energy strategy called for the use of fast-neutron reactors. [See page 46.]

Secretary D'AGOSTINO. Construction of the MOX facility began in August 2007 and significant progress has been made in the nearly five years since construction began, with design approximately 90% complete and the project is more than 60% complete. Eleven of the sixteen auxiliary buildings needed to support construction and operation of the MOX facility have been finished, including a new electrical substation which was completed in September 2010. More than 118,000 cubic yards of reinforced concrete and 19,000 tons of rebar have been installed by more than 2,000 workers. More than 400,000 feet of process piping and nearly six million feet of electrical cable are currently being installed, while installation of the process tanks is 90 percent complete.

MOX fuel fabrication technology is well established and mature, and MOX fuel is used in more than 30 commercial reactors worldwide. The design of the U.S. MOX facility is based on proven French technology currently in use at the MELOX and LaHague facilities in France. The facility at the Savannah River Site is being designed and built to meet U.S. conventions, codes, standards, and regulatory requirements, and will be licensed by the U.S. Nuclear Regulatory Commission (NRC). The NRC authorized construction of the facility in 2005 and is currently reviewing the contractor's application for an operating license. Construction is currently scheduled to be completed in 2016, and has a total project cost of $4.8 billion.

However, there continue to be significant cost and schedule challenges in key areas, including identifying suppliers and subcontractors with the ability and experience to fabricate and install equipment to the requirements of Nuclear Quality Assurance (NQA)1 standards for nuclear work, which has resulted in a lack of competition for work and higher than expected bids. The project is also encountering significantly greater than expected turnover of experienced personnel due to the expansion of the U.S. commercial nuclear industry.

The Department is in the process of formally evaluating the possible impacts that these cost challenges have on the schedule for construction and operations of the MOX facility, and is considering changing the performance baseline if necessary. [See page 44.]

Secretary D'AGOSTINO. The Tennessee Valley Authority (TVA) is currently exploring technical and regulatory requirements associated with irradiation of MOX fuel in five reactors pursuant to an interagency agreement that was signed in 2010.

The current schedule with TVA is to execute a fuel supply agreement for MOX fuel in 2013, after NNSA completes a Supplemental Environmental Impact Statement, in which TVA is a cooperating agency.

In addition, NNSA is consulting with various fuel fabricators regarding the option of having them market MOX fuel to their utility customers. NNSA also continues to develop strategies to attract other utility customers. [See page 45.]

Secretary D'AGOSTINO. The U.S. will sell the fuel that is fabricated at the MOX Fuel Fabrication Facility at the Savannah River Site to domestic nuclear utilities to be irradiated in NRC-licensed and regulated commercial power reactors. TVA is one such utility. Money resulting from the sale of the MOX fuel will be returned to the U.S. Treasury.

MOX fuel behaves like traditional low enriched uranium fuel in the reactor's core, and the irradiation results in spent fuel, a form that is not usable for weapons or other military purposes. [See page 45.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

April 17, 2012

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. 1) What is the cost of the alternative plutonium strategy, including modifications to PF–4 and RLUOB, shipping material to DAF and Superblock, cleaning out the PF–4 vault, conducting the pit reuse study, etc.? How much will it cost to implement this alternative plan? To the extent possible, please break down the cost by individual actions/projects needed.

Secretary D'AGOSTINO. The preliminary Los Alamos cost estimate for execution of the interim plutonium strategy is in the range of $590M–$820M over the next 8 years. This range is the result of a sixty day study to revise the strategy, and NNSA will work with the laboratory throughout the FY 2014 Budget formulation process to refine that strategy and the cost estimate. In the interim, we have provided your staffs with the detailed analysis from the sixty day study.

The estimated $120M of already-appropriated funds remaining after the design work on the CMRR–NF is closed out is critical to beginning to implement the interim plutonium strategy at Los Alamos, which includes: additional equipment in RLUOB, relocation of equipment from the original CMR to PF–4, early start up of radiological laboratory activities in RLUOB, and design work for a secure material transportation system between RLUOB and PF–4.

In addition, the FY 2013 President's Budget Request includes $35M to process, package and ship excess material out of PF–4. The PF–4 vault cleanout work is planned for FY 2013–FY 2020, with an estimated cost of approximately $35–50M per year.

Mr. TURNER. 2) Do you still anticipate building CMRR–NF, with work commencing in 5 years? How much more expensive will CMFF–NF be then vs. if we built it now?

Secretary D'AGOSTINO. As part of ongoing program analysis and close coordination with DOD, the option to begin construction of the CMRR–NF remains available.

The decision to defer construction of the CMRR–NF for at least 5 years enables us to focus on other key modernization priorities while still ensuring uninterrupted plutonium operations.

Detailed planning is under way to ensure the Nation possesses continued capability for required analytical chemistry, materials characterization, and nuclear material storage functions.

While program delays often lead to greater costs in the long run, they can also yield savings by creating the conditions to consider options that may meet requirements at less cost.

Mr. TURNER. 3) Please provide a final estimate cost figure for the CMRR–NF facility, based upon where the design is at right now. We understand that LANL and NNSA have made strides to reduce the cost of CMRR–NF. How much would CMRR–NF cost if it were to continue today? What would have been the baseline cost presented to Congress in FY 2013?

Secretary D'AGOSTINO. The current Total Project Cost (TPC) range estimate for the CMRR–NF, as reported in the 1251 Report, is $3.7B–$5.8B. The Los Alamos project team identified several opportunities in FY 2011 to reduce the project estimate by approximately $450M. As part of design close out efforts in FY 2012, the project team will update the cost range without the benefit of long-lead equipment vendor design information. This cost estimate is not expected to be a "baseline quality" estimate, but will reflect best available cost information at the conclusion of design activities.

Mr. TURNER. 4) How much will this alternate plan cost in relation to what CMRR was expected to cost?

Secretary D'AGOSTINO. The current Total Project Cost (TPC) range estimate for the CMRR–NF, as reported in the 1251 Report, was $3.7B–$5.8B. The preliminary Los Alamos cost estimate for execution of the interim plutonium strategy is in the range of $590M–$820M over the next 8 years. NNSA will work with the laboratory throughout the FY 2014 Budget formulation process to refine that strategy and the corresponding cost estimate.

Mr. TURNER. 5) If we have a continuing resolution for the beginning of FY 2013, will NNSA recommend to the President that he seek an "anomaly" for NNSA—or any individual NNSA programs?

Secretary D'AGOSTINO. It would be premature to state whether I would recommend to the President an anomaly is what's needed for NNSA programs in the event of a continuing resolution. Furthermore, any anomaly request would have to be approved by the Secretary before going to the White House and would be shaped by the overall funding context as we head into FY 2013.

How would a continuing resolution, without an anomaly, affect the B61 life extension program?

The current program of work for the B61 assumes full funding at the level requested in the President's Budget by October 1, 2012. Funding at a level less than the request, or an appropriation that comes well beyond the start of the fiscal year would unequivocally have implications for the program. That said, it's difficult to say what those implications would be without knowing the precise amount of the funding or the precise timing of the appropriation.

Some aspects of the program that we would have to review closely would be the ramp-up to phase 6.3 activities including hiring additional technical staff at the national laboratories and production plants, flight tests, and environmental testing. Ultimately, the magnitude of the impact will depend on the length of the continuing resolution period.

Mr. TURNER. 6) Will NNSA ask Congress to address the W76 LEP funding issue? If so, what fix is needed?

Secretary D'AGOSTINO. NNSA is currently considering actions to realign FY 2013 funding to put the program on track to meet the Navy's operational requirements by the end of 2018 and complete the overall W76–1 production in FY 2021. This may include working with the Congress to realign funding before enactment, or reprogramming funds after the start of FY 2013.

Mr. TURNER. 7) NNSA is conducting a review of all of its Federal personnel, with an intent of possible streamlining. When will this review be complete?

Secretary D'AGOSTINO. The review will be completed by December 31, 2012. Our current plans for reshaping the NNSA workforce are being developed in a manner to ensure, both now and in the foreseeable future, that we are in a position to: support mission execution, ensure high quality project management of several critical multi-billion dollar construction projects, and transform our Cold War nuclear weapons complex into a 21st Century Nuclear Security Enterprise. The review under way is a strategic effort to analyze baseline requirements for NNSA's workforce of the future that includes plans to maintain and enhance the pipeline of critical talent for the future, concurrent with changes to the existing workforce.

Mr. TURNER. 8) Please provide further details on the effort to eliminate transactional oversight at certain NNSA sites by June, as mentioned during the hearing.

Secretary D'AGOSTINO. NNSA is working with its laboratory partners to assess what is needed for a strategic oversight posture vice a transactional oversight approach. This assessment includes a review of actual functions performed by Federal staff and the costs and benefits of those functions as they relate to the work at the labs. The goal is to shift oversight for nonnuclear or lower hazard activities to focus on overall system performance and not individual transactions. This approach requires fewer resources, is less intrusive, and helps ensure we can hold plant and laboratory personnel responsible for performance. Experience with this approach at the Kansas City plant indicates that a Federal focus on performance outcomes and not individual transactions improves performance across the board (safety, quality, and production).

QUESTIONS SUBMITTED BY MS. SANCHEZ

Ms. SANCHEZ. 9) What are the benefits, including cost-savings, and risks of planning to build CMRR when PF4 is replaced?

Secretary D'AGOSTINO. In five years, PF–4 will be approximately 40 years old and NNSA believes there will be a continuing need to provide robust nuclear infrastructure to support a variety of national security missions for the foreseeable future. Over the next several years, NNSA will continue to evaluate the most effective way to modernize its infrastructure while maintaining its plutonium capabilities. CMRR–NF design will be substantially completed by the end of 2012, but construction is delayed. As part of ongoing program analysis and close coordination with DOD, the option to begin construction of the CMRR–NF remains available. It is too early to speculate on potential cost savings, or risks, associated with a facility that could provide any combination of CMRR–NF and PF–4 capabilities.

Ms. SANCHEZ. 10) Can NNSA accomplish its mission safely without CMRR?

Secretary D'AGOSTINO. Yes. NNSA would not propose to delay CMRR unless we could safely accomplish our mission in the absence of new construction. The decision to defer, by at least 5 years, took into account safety concerns and the final decision was that the risk of delay was tolerable.

PF–4 has undergone a series of upgrades to improve the facility's response to seismic events, with other upgrades currently being implemented through a capital TA–55 Reinvestment Project to further enhance reliability and safety of the facility.

Ms. SANCHEZ. 11) Which planned LEPs are expected to require new pit production?

Secretary D'AGOSTINO. NNSA has existing Life Extension Programs for the W76 and the B61. The W76–1 and B61–12 do not require new pit production. The W78 and W88 are undergoing a conceptual study for life extension options. Options for both reuse of existing pits and remanufacture of existing pit designs are being evaluated. A decision for the W78 and W88 will be made during the Phase 6.2/6.2A Feasibility and Cost Study which will begin this fiscal year.

Ms. SANCHEZ. 12) With this sea change in plans, what assurances can you give us regarding the accuracy and reliability of NNSA's requirement definition process?

Secretary D'AGOSTINO. Determining requirements is the process of establishing and validating need in collaboration with customers and stakeholders. For example, the requirement to maintain analytical chemistry, materials characterization and plutonium storage capabilities in support of national security mission work at Los Alamos has been affirmed by an independent DOD assessment. Over the past year, NNSA made difficult decisions to align with the fiscal reality of the Budget Control Act. The decision to defer construction of the CMRR–NF for at least 5 years is fully consistent with DOD's 2011 independent assessment that recognized the higher operational risk of Building 9212 at Y–12 and the difficulty of executing both CMRR–NF construction and UPF construction under constrained funding scenarios. The decision to defer CMRR–NF construction does not increase risk to the safety and security of ongoing operations, and the operational constraints resulting from the decision do not prevent the NNSA from meeting mission requirements.

Ms. SANCHEZ. 13) The 50–80 pit production capacity requirement was determined while the NNSA was planning on developing and producing the Reliable Replacement Warhead. What currently drives this requirement?

Secretary D'AGOSTINO. There are a number of factors the DOD and NNSA consider when establishing the pit production capacity requirement. These factors include lifetime of the pits; stockpile size (number of warheads); potential pit modification; ability to reuse existing pits; and what is needed to have a responsive production infrastructure.

Ms. SANCHEZ. 14) Was a cost assessment done for all the alternatives to the 3 B option chosen by the Nuclear Weapons Council for the B61 life extension? Why/why not? If so, how does the cost-range for the 3B option compare to the funding range for the 3 other options considered?

Secretary D'AGOSTINO. Several life extension options were considered and assessed by the NWC prior to the decision to proceed with Option 3B. Of the 6 other options considered, only 4 fully met the military requirements including service life. These options all exceeded the preliminary Option 3B costs by approximately $1.5–$2B. Other options considered but not selected ranged from $1.5B–$4B for various component alteration scopes. These less expensive options had significant shortfalls in the ability to satisfy military requirements. In addition these options still require NNSA to begin a future life extension program in the 2020s. The NWC assessment concluded Option 3B was the most affordable life extension approach that met military requirements and assured no capability gap in our extended nuclear deterrent. Furthermore, NNSA and Office of the Secretary of Defense (OSD) Cost Analysis and Program Evaluation (CAPE) are jointly undertaking the B61 LEP Option 3B independent cost estimate, as well as the broader DOD–NNSA Strategic Weapons and Supporting Infrastructure analysis. This broader assessment seeks to "develop decision framework that balances DOD's weapon needs and NNSA's infrastructure and stockpile stewardship requirements within fiscal constraints for incorporation into the FY 2014 President's Budget." The final report for this DOD–NNSA Interagency Team is expected in November 2012.

Ms. SANCHEZ. 15) Is transactional oversight helpful or necessary to ensure safety, including nuclear safety? Why or why not? Are there other areas where transactional oversight should be applied for performance-based oversight? Why/why not?

Secretary D'AGOSTINO. A transactional approach to Federal oversight seeks to ensure contractor performance by observing operations and reviewing or even approving certain critical documents and activities, and is appropriate where the consequences of a failure are very high or where a performance failure is intolerable.

Ensuring the safety of our nuclear operations is one area where transactional oversight may be helpful and necessary. For example, a large radiological release could significantly jeopardize the health and safety of the public or disrupt the ability of the Department to conduct its mission. Consequently, the Department approves the safety basis and startup of operations where such a release, while unlikely, could occur, and ensures adequate safety is demonstrated prior to operations.

However, not all safety-related decisions require transactional oversight and it may even impede operations and add unnecessary costs for no benefit. For example, when a contractor has demonstrated adequate safety performance, the authority to review and approve restart of low hazard activities is often delegated to the operating contractor. As a general rule, most oversight is a blend of systems-level and transaction-level oversight. To establish a proper balance of oversight methods, NNSA is working with its laboratory partners to assess what is needed for a strategic oversight posture vice a transactional oversight approach. This assessment includes a review of actual functions performed by Federal staff and the costs and benefits of those functions as they relate to the work at the labs.

Ms. SANCHEZ. 16) Why did NNSA's fiscal year 2013 budget request not seek funding at the 1251 report level? Given the FY 2012 appropriations cuts, can NNSA execute work that had been planned under the 1251 report funding levels?

Secretary D'AGOSTINO. Last year, Congress passed the Budget Control Act (BCA) which limits discretionary spending for the next decade, and caps national security spending in Fiscal Year 2012 and 2013. In Fiscal Year 2012, Congress also reduced NNSA's request for Weapons Activities by $416 million below the President's request, or 5.4 percent. The BCA reflects a new fiscal climate in Washington, embraced by both Congress and the Administration. Like all agencies, NNSA must adjust to this new reality. The proposed budget allows us to meet DOD's requirements by making the necessary investments in nuclear capabilities and the nuclear complex.

The National Nuclear Security Administration (NNSA) worked directly with the Department of Defense (DOD) and the Nuclear Weapons Council (NWC) to define a path forward to support the requirements in the Nuclear Posture Review Report. The realigned program, with adjustments to the original 1251 program and reflected in a memorandum on March 27, 2012, can be executed within the resources provided by Congress for FY 2012 and those requested for FY 2013.

QUESTIONS SUBMITTED BY MR. LANGEVIN

Mr. LANGEVIN. 17) Administrator D'Agostino, earlier this year, this subcommittee held a hearing that examined the recent National Academies of Science study pertaining to how NNSA governs, manages and oversees the nuclear security enterprise. This is in addition to numerous issues that have been documented through a long series of reports and studies over the past 10 years. What are the Department of Energy and the NNSA doing to address these issues and what is the budgetary impact of these issues?

Secretary D'AGOSTINO. The Department is committed to enhancing the efficiency of Government oversight while ensuring that critical nuclear security activities are conducted in a safe and secure environment. The Department takes very seriously the recommendations of the National Academy of Sciences regarding safety and security. Led by Secretary Chu, a former lab director, the Department is working actively to increase the efficiency of our oversight and to improve our approach to working with our partners. We believe that our ongoing efforts will be more effective at addressing those issues than prescriptive legislation.

The Department, including the NNSA, is committed to maintaining and improving safety and security standards while improving efficiency. Below is a description of steps that the Department has recently taken and plans to take to achieve these goals.

NNSA–National Laboratory Relationship Improvements

The February 2012 National Academy of Sciences and previous reports have expressed concerns with the relationship between the NNSA and the Laboratories, including the need to streamline operations. Over the past few years, the Department, including the NNSA, has been implementing the following actions to build trust and drive efficiencies and for this important relationship:

- To increase senior level communication, restore trust and foster collaboration on significant strategic improvements, the NNSA Administrator has initiated monthly executive forums that include the senior contractor leadership from the NNSA labs and plants, NNSA Field Offices, and senior NNSA headquarters staff. This forum is currently collaboratively working three major initiatives focused on improving the efficiency and effectiveness of NNSA oversight.

1. National Nuclear Security Administration Equivalency Matrix: A multisite NNSA effort to examine existing DOE contractual requirements and other nonstatutory requirements that can be adequately achieved through industrial standards and commercial practices.
2. Benchmarking: NNSA has established a cross functional team between NNSA and Laboratory representatives to review models in place at other laboratories and Federally Funded Research and Development Centers (FFRDCs) to document best practices and to make informed recommendations to increase the efficiency of the NNSA complex.
3. Strategic Performance Evaluation Plan Pilot Program: NNSA is undertaking a pilot program to streamline its evaluation of contractor performance by focusing on strategic outcomes indicative of acceptable overall performance in lieu of its historic tactical focus.

- Senior NNSA and DOE's Office of Health, Safety, and Security (HSS) personnel visited each of the seven nuclear sites and asked senior contractor and Federal personnel whether the Department's nuclear safety requirements were excessively burdensome. Site Federal and contractor personnel consistently agreed that while there have been implementation issues the nuclear safety requirements themselves are not excessive or inappropriate. The review identified areas for improvement in the nuclear safety directives, which were provided to the responsible offices and addressed in recent revisions. Revisions to governance processes to enhance collaboration will keep this feedback channel open in the future.
- In response to Secretarial direction, a systematic reform of the Department's safety and security directives has been undertaken and resulted in a redesigned, streamlined set of requirements that significantly reduces the level of prescription, offers flexibility for innovative solutions, and pushes decision-making authorities to appropriate levels within the organization. While maintaining requirements sufficient for effective safety and security performance, the Department revised, consolidated and cancelled directives to achieve a nearly 50% reduction in safety and security directives.
- The Secretary's "National Laboratory Director's Council," which includes the NNSA Laboratories, was tasked with identifying burdensome requirements for the Department. Of the 20 burdensome requirements identified to date by the Laboratory Directors, 14 have been resolved, four are on hold at the request of the Directors, and two are still in process.
- NNSA's Enterprise Operating Requirements Review Board (EORRB) engages Laboratory and Plant Directors, Site Managers, and Headquarters leadership to look at requirements and directives in order to ensure the level of prescription is appropriate and that the requirements are not excessively burdensome. This initiative has ensured that comments from NNSA personnel, including contractors, are adequately addressed. Since using this process, NNSA has been able to obtain a satisfactory resolution of 100% of its concerns during the revision of DOE directives, further ensuring that the desired balance in oversight is achieved.
- The NNSA Administrator's Policy (NAP–21) "Transformational Governance and Oversight," approved last year, defined principles, responsibilities, processes and requirements to help in transforming and improving governance and oversight. This document is being revised to take advantage of lesson learned through the governance reform process.
- A four-party governance charter has been signed by the Departments of Energy, Defense, Homeland Security, and the Office of the Director of National Intelligence to establish the Mission Executive Council as a means to coordinate interagency long term strategic planning for unique science, technology and engineering (ST&E) capabilities across agencies in order to ensure that those capabilities will efficiently and effectively support critical national security priorities. This now provides the forum for the joint long-term planning of people, skills and facilities needed to complement more traditional short-term and tactical Interagency Work activities at the laboratories.
- The Secretary recently approved transitioning DOE's orders and directives to a more risk-informed foundation (an Enterprise Risk Model). Future proposals for new requirements to be issued by DOE for contractor implementation must be evaluated on the basis of their benefit in terms of risk mitigation as well as their potential cost.

- Upon completion of the governance and oversight transformation effort, NNSA expects to have:
  - Clearer roles, responsibilities, and accountability,
  - Stronger Line Oversight and Contractor Assurance Systems,
  - Better balanced, performance and outcome oriented requirements, and
  - Improved contractual performance accountability.

Organizational & Business Improvements

- In March 2012, NNSA created and filled a new position of Associate Administrator for Infrastructure and Operations. This new organization is responsible for the integrated management of the NNSA Site Offices and coordination of all aspects of functional mission support across the NNSA enterprise. This will facilitate an NNSA enterprise approach to infrastructure management and operational support necessary for achievement of the OneNNSA concept.
- After more than 2 years of analysis and outside reviews, NNSA released a Request for Proposal (RFP) for the combined management and operations of the Y–12 National Security Complex and Pantex Plant, with an option for phase in of Tritium Operations performed at the Savannah River Site and recently established the NNSA Production Office to combine NNSA oversight of both production plants. Combining contracts and site offices will allow NNSA to improve performance, reduce the cost of work, and operate as an integrated enterprise.
- In 2011, NNSA created an Acquisition and Project Management organization to improve business practices. This represents a fundamental change in NNSA's approach to project and construction management. This office focuses on improving the quality of work while keeping projects on time and on budget across the Enterprise. For example, for the Uranium Processing Facility Phase A scope of work (rerouting Bear Creek Road and site utilities), the APM analysis of acquisition alternatives identified an alternate acquisition strategy that was subsequently approved resulting in a cost savings of $9 million. Other similar acquisition analyses are planned for upcoming NNSA projects.
- NNSA has realigned functions, responsibilities, and authorities in the NNSA management structure to support implementation of governance reform initiatives. This realignment has provided for clear and direct lines of communication from the Federal workforce to the contractor with a focus on mission execution.
- NNSA re-evaluated the assignment of authorities and responsibilities (and its delegations of authorities) to move decisionmaking to the lowest appropriate and competent level in the organization. This has resulted in more timely and better informed actions and decisions which in turn has led to increased productivity.
- NNSA is working to develop and implement governance reform metrics. The metrics will be used as inputs to demonstrate results and benefits of governance reform and enhance the use of data for Nuclear Security Enterprise (NSE) decisionmaking.
- NNSA awarded a Blanket Purchase Agreement for Enterprise Construction Management Services. The agreement will standardize NNSA's approach to project management across the enterprise and provide subject matter experts to provide independent analysis and advice related to the design and construction of facilities.

Safety & Security Improvements

The Department is aware of concerns previously raised regarding overly prescriptive safety and security regulations. The following improvements to safety, health and security oversight, including non-nuclear operations, have been implemented to streamline directives and improve our standards:

- In response to Secretarial direction, the Office of Health, Safety and Security (HSS) fundamentally redesigned its Independent Oversight program for safety and security. HSS now focuses its oversight on high-hazard, high-consequence operations, the Department's most significant national security assets, and instances of deficient performance. It has eliminated routine oversight of routine industrial operations and lower value security assets. With rare exceptions, large inspections teams have been replaced by a more strategic approach using smaller teams that focus on specific issues and are better coordinated with DOE (including NNSA) line management to ensure maximum value and optimal efficiency in data gathering, thus considerably reducing the impact of independent oversight on mission activities at DOE sites.
- NNSA has adopted a decentralized oversight approach for nuclear and non-nuclear safety, relying on the site offices to provide the primary oversight of its contractors rather than a burdensome regimen of headquarters oversight. This

approach is institutionalized in NAP–21, but will also be captured in the NNSA Functions, Responsibilities and Authorities (FRA) document, which is nearing completion. The FRA clearly articulates the regulatory oversight model that NNSA has implemented for safety and security, and associated regulatory roles and responsibilities.

- To ensure consistent and balanced implementation of nuclear safety requirements at its site offices, NNSA performs reviews of each site office every 2 years, evaluating 18 nuclear safety areas. Areas reviewed include, for example, quality assurance and the development and approval of safety documentation. These reviews are staffed largely by Federal subject matter experts from the sites, allowing good practices to be shared directly between the sites while developing a common set of expectations amongst the practitioners on how oversight should be done. Headquarters personnel, augment these reviews, further helping ensure a consistent set of expectations. These reviews have helped eliminate site-specific implementation issues, driving consistent improvements in performance. In the first round of reviews, began in 2005, expected performance was found in only 67% of the areas assessed. Two years later, that level rose to 90%, and to 93% in the most recent series.
- To complement its decentralized execution of oversight, NNSA has implemented a Central Technical Authority who, among other functions, ensures that DOE policies are developed and promulgated consistent with the needs of NNSA and its contractors. The Administrator currently serves this role, and is supported by an Associate Administrator for Safety and Health with a staff of subject matter experts. DOE requires CTA concurrence on revisions to requirements that can affect nuclear safety. NNSA has used this authority to ensure that the needs of NNSA and its contractors are properly reflected in revisions to DOE nuclear safety directives.
- NNSA completed a security reform initiative to deliver programmatic reform and provide cost-effective protection of nuclear weapons, special nuclear materials, classified information, facilities, and employees that has saved NNSA and taxpayers over $50 million per year in productivity improvements and cost reductions (several hundreds of millions of dollars over the 5-year FYNSP), while maintaining a robust security posture. This security reform initiative restructured security governance and oversight to redefine the survey and self-assessment activities. This initiative also had the Site Offices implement a risk-based model that prioritized and focused resources on high-risk operational activities.
- NNSA has developed NAPs for security with the goal of achieving management and operational excellence. NNSA's security NAPs include improvements that would also benefit other DOE organizations, and that will be incorporated into a revised set of DOE security directives that provides consistent direction to all DOE sites. The revisions to DOE directives will focus on establishing security requirements that are necessary for adequate protection and conform to national standards, while providing flexibility to site organizations to use the most appropriate methods to meet the security requirements and protection objectives. NNSA is working collaboratively with HSS in the revision process for the DOE security directives and will cancel current security NAPs upon their incorporation into revised DOE directives.
- NNSA established a Security Commodity Team (SCT) that delivered a common procurement mechanism with a single provider for uniforms and a wide range of tactical equipment that produced cost savings, more efficient processing time, and expedited delivery schedules.
- NNSA initiated a Protective Force (PF) Training Reform Initiative to develop a corporate PF training program, based upon newly developed and consistent mission-essential tasks. This initiative will improve the focus, effectiveness, and efficiency of the annual PF sustainment training program.

Mr. LANGEVIN. 18) Mr. Huizenga, the DOE received $5.1 billion for Defense Environmental Cleanup through the American Recovery and Reinvestment Act of 2009. Can you provide a status of the projects this $5.1 billion funded?

Mr. HUIZENGA. The Environmental Management (EM) American Recovery and Reinvestment Act Program has demonstrated tremendous success in accelerating the environmental cleanup of contaminated facilities, lands, and groundwater across the EM complex. Utilizing the full $5.99 billion received in Recovery Act funds, EM has completed 92 percent of the projects/cleanup activities on-time and within budget. EM has also reduced its environmental contamination footprint from over 900 square miles to 316 square miles as of March 30, 2012. In total, EM has initiated 126 discrete projects/cleanup activities (85 Defense Environmental Cleanup funded and 41 Non-Defense funded). To date, 95 projects/cleanup activities have been completed (64 Defense funded and 31 Non-defense funded). Currently, the Defense Environmental Cleanup Recovery Act account has a balance of approximately $215 million that will be utilized to complete 21 remaining projects/cleanup activities.

Mr. LANGEVIN. 19) Mr. Winokur, can you please discuss your safety concerns regarding the Waste Treatment Plant at Hanford, and are there current efforts between the DNFSB and the DOE to address these concerns?

Dr. WINOKUR. For more than a decade, the Board has devoted time and resources to oversight of the Waste Treatment and Immobilization Plant (WTP) with two main safety objectives. First, operation of the plant must not expose the public or workers to undue risk. Second, the plant must achieve its design objectives to eliminate the safety and environmental risks posed by continued storage of millions of gallons of high-level waste in aging underground tanks. Although this is a one-of-a-kind project with novel technology that requires significant research and development, it is being designed concurrent with construction (also known as a "fast track" design/build approach). As a result, timely identification and resolution of technical issues are paramount to meeting the objectives of the Hanford cleanup effort.

The Board's safety reviews have focused on ensuring that important safety systems can meet the safety function and safety performance requirements specified in the project safety basis documents. The Board has identified significant weaknesses in the design of safety systems and is working closely with DOE to correct them. The Board has written two Recommendations and numerous letters on this project. The principal issues that have not yet been resolved are summarized below:

Mixing in Process Vessels. On December 17, 2010, the Board issued Recommendation 2010–2, Pulse Jet Mixing at the Waste Treatment and Immobilization Plant, to address nuclear safety hazards arising from inadequate mixing of waste in processing tanks. On November 10, 2011, DOE provided the Board with an implementation plan that commits to conduct a test program to determine the capabilities of WTP's mixing systems, develop waste acceptance criteria for WTP that will address safety concerns associated with mixing, and determine the requirements for waste sampling systems in the Tank Farms and WTP. However, on April 30, 2012, DOE informed the Board that a key technical assumption used in the planned approach to testing and modeling was not technically defensible, and that a revision to the implementation plan is needed. DOE plans to issue the revised plan by the fourth quarter of 2012.

Erosion and Corrosion of Piping, Vessels, and Pulse Jet Mixer Nozzles. The Board found that the WTP contactor had not properly justified the wear allowances needed to ensure that piping, vessels, and mixing equipment (particularly items that will be inaccessible once radioactive operations commence) will not suffer excessive erosion and corrosion over the 40-year design life of the facility. DOE agrees with the Board's evaluation. The WTP contractor is developing a plan for evaluating erosion and corrosion on a vessel-by-vessel basis that accounts for variations during waste processing operations.

Hydrogen in Piping and Ancillary Vessels. The Board is continuing to evaluate the safety issues associated with the proposed hydrogen control strategy for WTP, which allows hydrogen explosions in piping under certain conditions. The contractor recently completed its resolution of technical concerns identified by the Board and by an independent review team chartered by DOE. DOE is presently reviewing the revised hydrogen control strategy. The contractor has not yet implemented the revised hydrogen control strategy in WTP's design or incorporated it in the safety basis. The contractor also needs to complete a major testing effort to determine the effect of hydrogen explosions on components such as valves and instrumentation.

Spray Leak Analysis. In 2011, the Board identified technical issues with the WTP contractor's approach for determining the consequences to the public of accidents involving sprays of radioactive liquids. DOE acknowledged that the Board's concerns were valid and committed to resolve them through a test program. This test program is currently under way.

Heat Transfer Analyses for Process Vessels. The Board found technical issues in heat transfer analyses that the WTP contractor was using to establish post-accident mixing requirements to avoid hydrogen explosions in process vessels in the WTP Pretreatment Facility. DOE has agreed that the technical assumptions in the contractor's heat transfer model needed better justification and is pursuing appropriate analyses.

Instrumentation and Control System Design. The Board found that the preliminary safety basis did not ensure the required reliability of safety-significant instrumented systems. DOE had the WTP contractor complete a comprehensive review of the problem and has committed to revise the appropriate procedures and guides for engineering and safety analysis to correct the issue.

Ammonia Hazards. The Board found that the existing design and safety-related controls will not adequately protect workers or facilities at WTP from accidents involving the large quantities of ammonia to be stored at the WTP site. In response, DOE informed the Board that the project team will perform three new hazard analyses to address the Board's concerns.

Design and Construction of Electrical Distribution System. On April 13, 2012, the Board issued a letter to DOE identifying safety issues with the design of the electrical distribution system at WTP. The Board is waiting for a response from DOE on this issue.

Safety Culture. The Board issued Recommendation 2011–1, Safety Culture at the Waste Treatment and Immobilization Plant, on June 9, 2011, after determining that serious flaws in the project's safety culture were inhibiting the identification and resolution of technical and safety issues. DOE accepted the Board's recommendation, and has provided an acceptable implementation plan for corrective actions. DOE's Office of Health, Safety and Security (HSS) independently reviewed the WTP safety culture, and confirmed the Board's conclusions in a report issued in January 2012. Both the DOE Office of River Protection and the WTP contractor are pursuing corrective action plans in response to the issues identified in the Board's recommendation and by the HSS review.

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